# THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

I KNOW OF NO PURSUIT IN WHICH MORE REAL AND IMPORTANT SERVICES CAN BE RENDERED TO ANY COUNTRY, THAN BY IMPROVING ITS AGRICULTURE.—*Wash.*

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## THE CULTIVATOR.

### TO IMPROVE THE SOIL AND THE MIND.

#### Our Sheet and its Price.

The first volume of the Cultivator was published at twenty-five cents a year; the subsequent three volumes at fifty cents; and for the fifth and sixth, we have charged one dollar a volume. Many of our original subscribers have probably thought, that we have been extortionate in advancing our price, and that our profits are *now* unreasonable. A plain statement of facts is due alike to them and ourself.

The first volume contained no cuts. The cuts of our present volume will cost us, probably, $300; and the first volume run us in debt nearly $600. But the exhibit of the quantity of matter, and the price of paper—the type setting and paper being the prominent items of expense—will show something of the relative profits, under the different prices which we have charged for the Cultivator. Taking printer's computation, and disregarding fractions,

| | | |
|---|---|---|
| A No. of our 1st volume, at 25c. contained | 50,000 ems. |
| " 2d volume, at 50c..... | 76,000 ems. |
| " 6th volume, at $1,..... | 160,000 ems. |

while the price of the paper has correspondingly advanced, until it is now $8.50 the ream; the larger page, and the smaller type requiring stouter and finer paper.

It will thus be seen, that our expense for type-setting, paper and cuts, for our sixth volume is more than quadruple what it was for our first volume, and more than double what it was for the second volume. We gain something in the press-work and mailing, and our subscribers gain in postage—paying no more now than they formerly did for a quarter, or a half, of what they now receive.

Comparatively speaking, the agricultural journals of our country are the cheapest periodicals that are published any where; and as to their superior utility, in promoting the substantial interests of our country, we entertain not a doubt. Take, for comparison of contents, one of the literary quarterly journals, say the North American. This contains, in a number, 248 pages, or 1,000 in a year, and about 1,000 ems in a page—giving an aggregate of 1,000,000 of ems. The Cultivator gives in a year about 2,000,000 ems, or double. The North American is five dollars a year—the Cultivator one dollar a year. To correspond with the price of the North American Review, according to the quantity of matter it contains, the price of the Cultivator should be ten dollars a year. Surely no one can hereafter complain of price, however light they may value the matter. And we beg our readers to notice, that the Cultivator is now printed upon a beautiful new type.

#### The Agricultural State of Scotland.

And what has that to do with American husbandry? it may be asked. Much, we reply. We may learn, from what Scotland *was*, and what she *is*, in agriculture, many useful lessons in farming. We may learn our own errors in practice; and, if we are not too proud, or too conceited, we may learn, from Scotch lessons in farming how to correct them—we may learn from them how to double, at least, the products of our agricultural labor. The history of Scotch agriculture, for the last fifty years, is invaluable to every farmer who would improve his practice. History is wisdom, teaching by example.

We find a valuable essay in the Edinburgh Quarterly Journal of Agriculture, showing what Scotland *was*, and what she *is*, in regard to her agriculture. She was, in 1784, two years after the close of our revolution, as poor as a *church mouse*. She *is now*, perhaps, the richest, in agricultural products, of any portion of Great-Britain, at least so far as regards her arable lands.—The writer describes the face of the country, at the middle of the last century, "no better than that of a bleak howling wilderness," and well, he adds, might the poet at the inn window indite—

"Bleak are thy hills of north,
Not fertile are thy plains,
Bare-legged are thy nymphs,
And bare —— are thy swains."

"In 1784, a few gentlemen, full of zeal for their country, and it may be a little love of society, formed themselves into a sort of hole and corner club, in a coffee-house called the Exchange, situated in the court of that name, near 'the market cross of Edinburgh.' Here, in the enjoyment of agreeable conversation and a good supper, did those worthies talk over plans for the amelioration of the Highlands, and from this nucleus arose the now widely extended and powerful Highland Society." * * * "To say what was the state of agriculture in Scotland, at the date of the formation of the Highland Society, would, to treat of it minutely, require greater scope than the limits of a periodical admit." * * * *

"But, to take one sweep over hill and dale, corn-field and meadow, we may at once pronounce the agriculture of Scotland, at that period, to have been wretched—execrably bad in all its localities! Hardly any wheat was attempted to be grown; oats full of thistles was the standard crop, and this was repeated on the greater part of the arable land, while it would produce twice the seed thrown into it;—turnips, as part of the rotation of crops, were unknown; few potatoes were raised, and no grass seeds or clover were sown. The whole manure of the farm being put on a little bit of ground near the farmstead, and there they grew some barley of the coarse sort, termed 'bere,' wherewith to make bannocks, broth and small beer, or peradventure, if the farm lay at the foot of the Grampians, to brew a portion of 'mountain dew!' Since the writer can recollect, a great part of the summer was employed in the now fertile shire of Fife, in pulling thistles out of the oats, and bringing them home for the horses, or mowing the rushes and other aquatic plants that grew on the bogs around the homestead. Such was the state of Scotland, with but little appearance of amendment, up to 1792."

The general outline of this picture of wretched husbandry is suited to the present condition of many districts on the eastern borders of our country, though the filling up of the picture would require to be somewhat different.

"Time, with her 'ceaseless wing,' had now brought in another century, and on the arrival of the nineteenth, the richer part of the low country had put on another aspect.—Beautiful fields of wheat were to be seen—drilled green crops and clean fallows every where abounded—the bogs had disappeared—the thistles no longer existed. In the Lothians, all this was carried on to a great extent. The farmers forgot themselves—they were coining money, and 'light come, light go,' was their motto. They went on in the most reckless manner—they began to keep greyhounds, to be members of coursing clubs, subscribed to the 'silver cup,' or 'puppy stakes,' and yelped the same note of folly as their betters in birth, their equals in extravagance and vice. Then followed yeomanry races—the good sturdy nag that would be of use *at a time* in the operations of the farm, was exchanged for a blood weed, and on market-day, instead of rational conversation about matters connected with their own calling, they began to talk '*knowingly*' about the turf. At this time, that is, from 1810 to 1814, the agricultural horizon was the brightest; the gas was fully up, the nation was alive, all was activity and business." * * *

But at this time the battle of Waterloo came, and with it peace and low prices. Farmers could not sustain their extravagance—they had been unable to bear prosperity—and their farms fell into the hands of more prudent managers. We have seen much of the same routine of industry, extravagance and poverty, among the farmers of our own country. Not willing to "*let well enough alone*," they have embarked in speculation, or in pursuits to which they were strangers, and have gone into extravagances and follies, to ape the great, which their means did not warrant, and which neither their comfort nor the welfare of their children required. The consequence often has been, that, like the indiscreet Scotch farmer, their lands have come into the possession of more prudent managers.

But though Scotch farmers failed, from not knowing how to bear prosperity, Scotch husbandry did not retrograde.

"In 1815, the turnip husbandry had got a firm hold in the country—the benefit accruing from it was so apparent, that no convulsion in the market prices could make the farmers forsake it."

Yet the culture was limited, owing first to the want of manure to feed the turnip crop, destined to fatten the farm stock; and 2dly, to the expense of driving their cattle to a distant market. Two discoveries removed these impediments. The first, "the most important," says our author, "that ever occurred in the annals of agriculture, viz. that of *bone-dust*," and the second, the *application of steam*, by our countryman, Fulton, to the propelling of vessels, which enabled the Scotch farmer to transport his fat animals to Smithfield market, at a moderate expense. "So palpable was the benefit to be derived from the use of bone manure, that in a few years there was not a farmer who did not avail himself of it. The farmers could now grow turnips to any extent, and the bare fallow was exploded." We have bone-dust, and poudrette, and other newly discovered means of fertility, which the farmer is shy of buying and using. We have tried them all, and are satisfied both of their utility, and the economy of their application, especially upon naturally dry or well drained soils. They add much to the products of agricultural labor, without any thing like a corresponding outlay. The Scotch farmer could now grow turnips to any extent. He could fatten upon these his stock: and he could send this stock to market at a trivial expense, for the "steam engine had become his drover."

But another—a third improvement followed, which we have yet to learn the value of—we mean *furrow draining*, on flat and tenacious soils. Hear what our author says upon this subject:—

"No man holding land ought to be ignorant of the thorough or Deanston drain. Mr. Smith, deeply engaged in the cotton spinning trade, could not procure a fall of water on the river Teith, ten miles west of the castle of Sterling, without renting along with it a considerable portion of very bad and wet land. Not liking to have a heavy rent to pay for such trash, Mr. Smith turned his powerful mind to the subject, and perceiving the folly of throwing away large sums of money on deep and useless drains, with all the stuff of tapping and boring, to *catch* the water as it were a wild beast for which gins and traps must be laid, hit on the idea of making drains in parallel lines in the hollow of every ridge, cutting them to the depth of thirty inches, filling them with small stones half-way to the surface, above this putti g a green turf reversed, and replacing the mould. Followin up his first discovery by ploughing deep, he has now a farm of the finest land ever seen; and so convinced is the writer of the utility of this mode of draining, that each year he has been increasing the quantity he has made, and during th last twelve months has put in above fifteen miles. Nor is the Deanston drain confined to those parts of the country where stone or gravel can be procured; the same system can be and is followed with the same effect, by using the Marquis of Tweeddale's tile; or even the poorest farmer, who has not capital to undertake costly improvements, can fertilize his farm by making the thirty inch drains and filling them with brushwood. It is perfectly wonderful to behold the mighty change this thorough-drain system is making in the different parts of the country where it is in operation: wet land is made dry, poor weeping clays are converted into turnip-soil, and even what would formerly have been accounted dry is advanced in quality. Whole parishes in the vicinity of Stirling are completely transformed from unsightly marshes into beautiful and rich wheat-fields, and where the plough could scarcely be driven for slush and water, we see heavy crops per acre and heavy weight per bushel, the quantity and the quality alike improved." * * *

"It is the greatest quantity produced at the cheapest rate that will ever make a prosperous trade. If wheat is low in price, the farmer must bestir himself." * * * "Let him remember that if he can but grow one or two quarters more per acre, he will be in a better position, even with the low price, than he was before." * * *

In speaking of the Highland Society, the writer enumerates the following means which that society adopted as contributing largely to the mighty advance of the agriculture of Scotland:—

"In the days of its youth and feebleness, the Highland Society sent the leaven of the turnip husbandry into all the glens and straths of the north, by offers of small prizes to certain Highland parishes; and the same may be said as to the growth of clover and the finer grasses. As it advanced in strength, (as to numbers and as to cash,) attention was turned to premiums for stock; then came offers of reward to men of science to discover better implements and machines, to diminish friction and consequently draught, such as in the thrashing mill and other parts of agricultural machinery. Still advancing in the scale of intellect and of science, premiums were offered for essays to bring to light the facts connected with chemistry and natural philosophy; and, under the auspices of the society, was set up the Quarterly Journal of Agriculture, a work which has been the vehicle of conveying so much useful information to the agriculturist, that, we humbly venture to say, it ought to appear on the table and bookshelf of every farmer's parlor. After this, the great stock-shows were resolved upon, as another link of union between the society and the practical farmer, at the same time throwing aside all paltry feeling, and making them open to stock from both sides of the Tweed, [*i. e.* from England as well as Scotland.] How well they have succeeded, let the last one at Glasgow bear witness. [This was the most splendid show of fine cattle ever exhibited.] Nor has the society forgotten the beauty of the country, as the premiums offered in regard to planting trees and such-like subjects fully testify; and to sum up all, it may be said, the Highland Society has been a '*point d'appui*,' a rallying point, to which the agriculturists of Scotland might look, and a fostering mother to all who, although strong in talent, were weak in interest to make it public. An ardent lover of the plough and all that can speed it, the writer of this article would advise the society of England [and all other agricultural societies who would be useful to their country,] to look into the annals of the Highland Society, and from them to cull whatever may be of use in the advancement of the delightful science, the culture of the fields.

———

"'the men
Whom nature's works can charm, with God himself
Hold converse; grow familiar day by day
With his conceptions; act upon his plans,
And form to his the relish of their souls.'"

The Highland Society have this year offered prizes to the amount of $17,000, under the following classification:—

Class I.—Agricultural machinery, 500 sovereigns and a gold and silver medal.

Class II.—Essays and reports on various subjects, embracing thirty-one subjects of high interest to the farmer, viz:

1. Geological surveys.
2. Reports on coal districts.
3. Mines and minerals.
4. Products of peat moss, &c.
5. Comparison between different kinds of manure in raising potatoes.
6. Extended application of water and other power to farm purposes.
7. Comparative efficacy of the two modes of thorough-draining.
8. Reports on irrigation.
9. Forest planting.
10. Sheep pastures at high elevations.
11. Improved sheep salve.
12. On crossing the Cheviot with the New Leicester Ram.
13. Cultivation of the recently introduced cereal and other grains.
14. Feeding farm horses on raw and prepared food.
15. Early rearing and fattening of lambs.
16. Insects injurious to agricultural plants.
17. Insects injurious to forest trees.
18. Comparative nutritive properties of grasses.
19. Extirpating ferns from pastures.
20. Thorough-draining.
21. Subsoil ploughing of thorough-drained land.
22. Mole plough.
23. Experiments with manures.
24. Analysis of bone or rape dust.
25. On the effects of altitude on vegetation.
26. Feeding of cattle.
27. Forests of larch.
28. On raising improved varieties of grains.
29. Reports on improved rural economy abroad.
30. Honorary premium for reports on certain districts in Scotland.
31. Investigation of certain points connected with the science of agriculture, viz:

An essay or memoir explaining, on scientific principles, the mode in which soil operates in producing or facilitating the germination and growth of vegetables.

An essay or memoir describing and proving, on scientific principles, what is the best admixture of the ordinary elements of soil, for promoting the germination and growth of particular vegetables.

An essay or memoir describing, on scientific principles, the mode in which lime operates in rendering the soil better adapted for the germination and growth of particular vegetables.

An essay or memoir explaining, on scientific principles, the effect of drainage, in altering the constitution or qualities of the soil, and increasing its fertility.

An essay or memoir, showing the nature of the atmospheric influences on soil, in promoting its fertility, including the modification of these influences arising from heat and cold, dryness and moisture.

Class III.—Waste lands—their improvement by tillage.

Class IV.—Crops and culture.

Class V.—Pastures—their management.

Class VI.—Live stock—district competitors.

Class VII.—Products of live stock—butter and cheese.

Class VIII.—The best kept cottages and cottage gardens.

Class IX.—Woods and plantations.

Class X.—General show of live stock and agricultural meeting at Inverness.

Having shown, by our quotations, something of the vast extent of the recent improvements in the agriculture of Scotland, and the influence which its agricultural society has had in promoting these improvements, we have given the above sketch of their premiums, as indicating the means they have adopted, and are adopting, to bring about this great and salutary change—to show how vast a field they occupy—and the great bearing which science is made to have in the improvement of the soil, and in the operations of the farm.

## Transactions of the Essex Agricultural Society.

Although we consider our practice in reclaiming wet grounds, as very defective, and not managed upon scientific principles—neither so economical as to ultimate profits, or permanent in improvement as it might be—yet the advantages are so palpable, even under our defective mode of management, as to make it the interest of every farmer, who possesses grounds of this description, immediately to commence this branch of improvement.

The Essex County Agricultural Society have wisely turned their attention to this matter, and made it the subject of premiums. In the pamphlet under consideration, we find five claimants for the prize; and we propose to give an abstract of two of these communications, by way of inducing others to commence the like improvements, as matter of profit, as well as promotive of health, and of the beauty of rural scenery. For there are few things more obnoxious to health than stagnant waters, and there is nothing more disgusting to the eye, in an old settled district, than noisome swamps and marshes.

Timothy H. Brown, attacked a swamp of between five or six acres, in Saugus, the mud in which was from two to twelve feet deep, and which was so thickly covered with briers and bushes, that a dog would have found difficulty in passing through it—and so many stumps and logs that the plough could not enter the soil, though it had been dry. It was of course worth nothing in its then condition. He cut and burnt the brush, dug out the stumps and roots, and reversed the turf, by hand labor, and dug a drain. In the winter following, he drew off the logs and stumps, harrowed the ground thoroughly, in the spring, when but a few inches of the surface was thawed, and about the first of May, planted potatoes. His crop was 927 bushels. His logs and stumps were converted into charcoal.—The land is now, says Mr. Brown, in a state that I can plough it at pleasure. Mr. Brown states the debtor and credit account of the improvement as below.

VALUE OF PRODUCTS.

| | |
|---|---|
| Proceeds of coal in 1837, | $166 40 |
| do do 1838, | 333 33 |
| Value of crop of potatoes, at 50c. | 463 50 |
| Value of ashes for manure, | 75 00 |
| Value of wood sold, | 50 00 |
| Value of wood used, | 50 00 |
| Increased value of the land, it being now worth $125 an acre, and originally worth only $12 an acre, | 565 00 |
| | $1,703 23 |

EXPENSE OF IMPROVEMENT.

| | |
|---|---|
| Levelling and clearing the land, | $504 00 |
| Carting the wood and roots, | 35 00 |
| Harrowing, &c. | 12 00 |
| Planting, hoeing, harvesting, &c. | 117 00 |
| Coaling in 1837, | 40 00 |
| Coaling in 1838, | 100 00 |
| | 808 00 |
| Profit by the improvement, | $895 23 |

William Osborn, Jr. made an experiment upon four acres of like conditioned swamp, in the same town, commencing in the autumn of 1837. He adopted much the same course as Mr. Brown in clearing the land, and run a ditch around the piece, and four ditches across it, three feet deep and four feet wide. He put on different crops, as indicated in the following statement of his expenses and value of his crops.

CROPS.

| | |
|---|---|
| 320 bushels potatoes, at 60c. | $196 20 |
| 5½ do rye, at $1.25, | 6 87 |
| 8½ do corn, at $1, | 8 50 |
| 100 do ruta baga, at 30c. | 30 00 |
| 20 cwt. hay, | 12 00 |
| 50 dozen cabbages, at 50c. | 25 00 |
| 2,000 lbs. squashes, | 20 00 |
| Value of fuel, | 25 00 |
| | $323 57 |

EXPENSE.

| | | |
|---|---|---|
| Cost of land, | $25 00 | |
| Labor, per contract, | 86 50 | |
| 94 days by help on farm, | 70 50 | |
| Seed potatoes, | 15 00 | |
| Rye and grass seed, | 1 17 | |
| Six cords manure, at $5, | 30 00 | |
| Two casks lime, | 2 00 | |
| 22 days' labor, gathering crops, | 16 50 | |
| | | 246 67 |
| Nett profit, | | $77 90 |

And the land in the bargain, probably worth $400 more.

*Experiments with manures*—We subjoin the report of the committee upon this branch of farm economy. It contains suggestions which are of great value; and where manure sells for $5 a cord, as it does in Essex, no branch of farm economy is entitled to higher consideration.

"The Committee report:—That they consider the subject of the making and application of manures, one of the greatest importance to the agricultural interest. Manure and labor are to the farmer, what capital and credit are to the merchant. With them, well applied, the one will add barn to barn, the other store house to store house, till there shall be no room to contain their several wealth; without them they must soon suspend operations, and their farms and their ships pass into the hands of more skilful and industrious owners.

"Many farmers think they cannot afford to purchase manure, and the price *does* seem disproportioned to the immediate profits; but no farmer will say that he cannot afford to make the most of what he has, and to apply it to the best advantage. Many take an honest pride in being able to say, I have raised so many hundred bushels of corn, or so many tons of hay; now to be able to say I have made five hundred loads of manure, is just as much a matter of boasting, for manure will make corn, and hay, and other valuable products, if it be only judiciously applied. Put in the seed and the manure, and the grateful soil will make you a liberal return. It is held to be true by experienced farmers, that he who doubles the expense of labor and manure, will increase his profits and products in nearly a four-fold proportion. In other words, the man who spends half his time upon his farm, and skims over one hundred acres of land and gleans from it fifty bushels of corn and twenty tons of hay, if he should devote his whole energies to his farm and improve his means of making manure, might raise nearly two hundred bushels of corn and eighty tons of hay.

"Some have, in their natural situation and proximity to the sea-board, greater facilities for making and obtaining manure, but every substance of animal and vegetable matter can be mixed with the soil in such a manner as to increase the fertility of the earth; and even the different soils may be mingled so as to produce the same effect.

"The quantity of manure a farmer uses, is a pretty fair criterion by which to judge his character. In Plymouth co. where a premium is awarded to the man who makes the greatest number of loads, a most worthy and truly respectable farmer, the last year, reached the very enviable eminence of 798 loads; the lowest competitor claimed for 350 loads, and his must be allowed to be an *improving* character. William Clark, Jr. of Northampton, in his statement to the Hampshire, Franklin and Hampden Agricultural Society, represents that he keeps an average stock of eight swine, three horses, and eight oxen and cows; from this stock, with the skilful use of all his advantages, which are not superior to those of many of our farmers, he made from June, 1837, to June, 1838, 920 loads, an honorable monument to his intelligence and industry, which compensates in utility and solid value for what it may want in taste and splendor. Mr. Clark used for compost, 300 loads of sods and soil and 247 loads of swamp muck. His yards were supplied with corn stalks and refuse hay during the winter, and brakes and weeds in the summer, and cleared out twice during the year. It might be supposed that manure so made could possess but little of the quickening and strengthening principles, but those who have visited his farm and seen his fields burdened with their heavy crops, are satisfied that Mr. Clark knows how to make manure and to apply it, and that his fields acknowledge their obligation and pay their due return. Mr. Clark, from such manure, has raised more than one thousand bushels of corn in a year.

"The committee award to Daniel Putnam, of Danvers, for the satisfactory experiment and the full and explicit statement made by him, a premium of twenty dollars.

"They recommend that Mr. Putnam's statement and the letter addressed by Joseph How, Esq. of Methuen, to the committee, be published. For the committee,

"DANIEL P. KING.

"*Topsfield, December* 25, 1838."

[The letters of Messrs. Putnam & How in our next.]

## Notes on New-Jersey Farming.

A recent visit to New-Jersey, has enabled us to see more of its husbandry than we have before witnessed in passing across the state by the ordinary routes of travel, and to judge better of its capacities for agricultural improvement. The few remarks which we have to offer, are the result of incidental observations which we were enabled to make on our passage from Newark to Trenton, and from Burlington, through Bordentown, Haightstown, Freehold, Shrewsbury and Middletown to Keyport on Amboy Bay.

New-Jersey is very advantageously situated for marketing the products of her soil. Surrounded, except on her northern border, by navigable waters, with several boatable streams coming from the interior, and two canals and two rail-roads extending from her eastern to her western border, the agricultural productions of the state, may be sent to either New-York or Philadelphia in a few hours, and converted into money; and a great many farm productions, which are perishable, or which would not bear the expense of ordinary inland transportation, are thus rendered sources of immediate and substantial profit. Thus, for instance, the fruits and garden productions of the valley of the Delaware, where the season is earlier than on the Atlantic border, are sent off in the afternoon, by the rail-road, and are in the New-York market the next morning before sunrise, in excellent condition. We returned, a part of the route, in what is termed the *truck* train, which, before it reached Haightstown, or the half-way station, consisted of eighteen cars, filled principally with melons, peaches, and other garden truck. The facilities for transporting lime, marl, manure, &c. are equally advantageous.

The soil of those parts of New-Jersey through which we passed, is mostly sandy, frequently with a tenacious subsoil. The surface in the interior, is gently undulating, but more so near the eastern and western borders; while a ridge, extending from southwest to northeast, may in some parts be called hilly. Many of the lands are consequently too much saturated with water in the spring, and in wet summers, for profitable husbandry. When laid dry, these lands are wonderfully improved by the application of lime or marl, aided by ordinary manures. We were shown a farm of this character, which the present owner purchased a few years since at seven dollars an acre, and which he had since drained, marled, &c. and which was now considered worth $125 an acre. We examined the crops on another farm, and they were fine, which a short time since was purchased for about the same price, and which is now estimated to be worth $100 an acre. It may be still much improved by underdrains and a further application of fertilizing materials.

The defects in New-Jersey farming seem to have been the same as have too generally prevailed in all the Atlantic states:—a system of continued cropping, without regard to draining, manuring or alternating crops. The fact seems to have been but little known, or little regarded in olden time, that plants, like animals, feed and fatten—not upon mere earths—but upon the organic matters in the soil—and that every crop taken from a field diminishes its fertility. Another fault in New-Jersey, as well as in American farming generally, has been spreading the farming capital and farm labor over too broad a surface—in cultivating one hundred acres poorly, instead of cultivating ten, twenty or thirty acres well—the returns and profits of the latter generally exceeding those of the former, of which New-Jersey herself exhibits many notable and highly commendable examples. Draining is essential, in many places, to

the healthy growth of clover, in which New-Jersey farming seems very deficient; and, indeed, all grass seeds are too much neglected. We saw several fields which had been cropt with corn and rye, and turned into pasture without grass seeds. We suspect that another defect in New-Jersey husbandry is, the small number of neat cattle which are reared and fattened. In this matter, the Jersey farmers might learn a useful lesson from the neighboring counties of Pennsylvania, where lean cattle are purchased in autumn, and fattened upon roots and coarse grain, for the great markets. They leave upon the farm the elements of fertility to the soil. If the products of the farm are consumed upon it, that is, the hay, straw and roots, and the dung carefully husbanded and applied, the fertility and profits of the farm will certainly, under a suitable alternation of crops, progressively increase.—But if these products are all carried off, and nothing returned, sterility will certainly ensue. Dung feeds crops, crops feed and fatten cattle, and cattle manufacture dung. We have another example to offer to our Jersey friends, of the facilities of enriching their lands. We called upon a gentleman upon the confines of their state, W. A. Seeley, Esq. of Staten-Island, who has a farm of 200 acres, which he has brought into an excellent condition from an impoverished state. His crops were all well manured and fine, and he showed us piles of surplus manure, estimated to contain 2,500 loads, composed of yard dung, peat earth, peat ashes, seaweed and fish, all furnished by his own farm and his own shores. Such is the effect of capital and skill judiciously applied. We will not say we saw the *best* corn growing upon these grounds—but we think we saw *as good* as we saw any where in New-Jersey. The Jersey and Dutton corn were growing side by side; and we are promised a statement of their relative products.

The means of fertilizing the lands of New-Jersey are abundant, the facilities of procuring them great, and a disposition to employ them rapidly extending. We saw near the boatable waters great quantities of lime, marl, green sand, oyster shells, ashes and manure, and in many places marl pits which had been extensively excavated, and were told that the use of all these fertilizing materials was sensibly increasing.

The *Morus Multicaulis* is at present the staple product of New-Jersey, particularly about the cities and villages. On asking a grower near Burlington, what portion of the land in that vicinity was appropriated to the growth of this plant, he replied, between a third and a quarter. Many gentlemen have made fortunes by the sale of the trees and buds, and many, very many, *expect* to make fortunes in a like way, and some by feeding worms. We saw several extensive cocooneries, but principally, at present, appropriated to the production of eggs, which have borne a very high price.—Lands have let for $50 an acre, for raising the multicaulis. There are considerable failures in the crop, owing to the unfavorable spring, the plants having generally been grown from single buds. Actual sales have been made at 15, 20 and 25 cents. We heard of none being sold higher. The plants are from one to five feet high. In Virginia and Maryland, sales are said to have been made at 34, 50 and 100 cents. We saw at Haightstown, many of the multicaulis grafted, at the ground, upon the white mulberry. Their growth had been surprising. We measured some on the grounds of Mr. Coward, which had grown, during the season, 8 feet 4 inches.

*Lime* is principally brought from Pennsylvania, and sold at 10 and 12 cents per bushel, slaked. It is applied, in rather an effete state, at the rate of 50 to 100 bushels an acre, the poorer land receiving the smaller, and the richer land the larger dressing. It is generally mixed with arable lands by the harrow. Its benefits are palpable; and the increase of the first crop often pays the outlay.

*Marl*, which includes green sand as well as shell marl, abounds in Monmouth county. That procured from the southern border of the county is deemed best. The expense of dressing an acre at Shrewsbury, with a charge of twelve miles of land carriage, is from $15 to $20. Inferior qualities are procured there cheaper, though a greater dressing of these is required. It amply repays charges in the first crops, and permanently improves the land.

Among other fertilizing materials, we saw *barilla ashes*, and the *fleshings*, *hair* and *tan* from morocco factories, and great quantities of *sea-weed*, collected on the beach, and afterwards spread in the hog and cattle-yards. Sea-weed forms an important item of manure on the seaboard. We should be pleased to receive a communication, from some gentleman familiar with the subject, as to the best mode of preparing it and applying it to the soil.

*Peaches* are a profitable article of culture in the country through which we travelled. The fruit is convertible into money in twenty-four hours after it is gathered. The profits would be far greater, if means could be adopted to prevent the early decay of the trees. The average continuance of a peach orchard is from six to eight years; and four crops of fruit are considered a liberal return. The disease which destroys the trees is termed *the yellows*. Would it not be commendable in the New-Jersey State Agricultural Society, which has just been organized, or even in the legislature of that state, to offer a bounty for the discovery of a cure or preventive of this disease? It is preferred by the peach growers to leave the trees without pruning, even in the nursery, that the branches may spread naturally. A Delaware peach grower practises cutting in the branches, after they have borne two crops, and thereby gets newer and better bearing wood. By planting thick, and heading in a portion every year, alternately, the fruit is very much improved, without being sensibly diminished.

The extent of the peach plantations will seem extravagant to some of our northern readers. Many growers have 10,000 trees, one 30,000; and at one place in Shrewsbury, there are 50,000 trees growing contiguous and forming as it were one magnificent orchard.

*Melons* also constitute one of the staple products of some parts of New-Jersey. Sloop loads are daily taken to the New-York and Philadelphia markets, and sold at ten and twelve dollars a hundred. Some idea of the profits of the melon culture may be formed from data which we obtained at Keyport.

P. Hopkins bought twelve acres of land, in 1837, in Middletown, for which he paid $30 per acre. In 1838, he put four acres in melons; his crop averaged $150 per acre. He put the same in rye in the autumn, and in 1839, got 30 bushels the acre. And in the present year he put six other acres in melons, the average value of which is estimated at $150 to $200 per acre. The expense of lime, manure and fish was $32, and of labor $10 per acre. The account for the two years would therefore stand as below.

| | |
|---|---|
| Cost of 12 acres of land, at $30,..... | $360 |
| Cost of manure and labor on 10 acres, at $42.... | 420 |
| Total outlay,..... | $780 |
| Receipts from melons, 4 ac. $150 per ac. in 1837, | $600 |
| do do 6 do do 1838, | 900 |
| do from rye, 4 acres, 120 bushels,..... | 120 |
| | $1,620 |
| Deduct cost of land and charges,..... | 600 |
| Nett profits in two years,..... | $1,020 |

and the land in the bargain.

*Green crop of Indian Corn.*—N. Shotwell, of Rahway, has made an experiment with corn, as a green crop, which proved highly advantageous, and which, if we mistake not, affords a valuable suggestion to the farmer; as there is probably no green crop which will impart so much fertility to the soil as Indian corn. Mr. Shotwell sowed four acres with corn, broadcast, four bushels to the acre, at the usual planting time. When the corn was about breast high, he ploughed it under, affixing a chain to the whiffletrees, to break down the stalks; at the usual time, he sowed timothy seed, and obtained a greater crop of grass than he ever got after clover, buckwheat, or other green crops.

*New mode of preserving Apples.*—We were presented by our host, at Trenton, Aug. 10, with a pippin of last year's growth, as crisp, juicy, and of as fine flavor as those we have eaten at midwinter; and on inquiry were told, that they had been kept in a tight cask in an ice-house.

With regard to the state of society in New-Jersey, we are disposed, from the observation we were able to make, to think highly favorable of it. A greater equality seems to exist among the inhabitants, and more good feeling and kind-heartedness towards each other, than is commonly witnessed. All seem to be well off to live; and there are few of those artificial or aristocratic distinctions which are the bane of social and friendly intercourse, and inimical to republican habits and institutions.

## Agricultural Geology.

We are indebted to Prof. Jackson for his Third Annual Report on the Geology of Maine, for which we tender him our thanks. We have commenced extracting from it, in to-day's paper, an interesting article on agricultural geology, which cannot fail of being interesting to the enlightened reader. It furnishes another and a strong evidence of the great importance of establishing professional schools of agriculture, as the most, if not the only, effectual means, of learning how to manage our soils, and of developing their hidden riches. The main objection to establishing such schools has been, the want of competent instructors. Do we want better instructors for the scientific department than can be furnished from the geological corps of the several states? And as for practical instruction, we have certainly men enough competent to undertake to give it. And if we had not, the geologists, with their zeal to apply science to this all important business, would soon become practical men. They are now working, hard working men—and many of them would delight in blending science with practice, in schools of instruction. Four years, the period often devoted, in schools, to acquire a knowledge of Greek and Latin, which Dr. Rush says makes learned fools, would suffice to make a young man familiar with agricultural science, to give him the best practical instructions in the art or practice, and to fit him for the highest duties in civil life. And when he came forth from such an institution, upon the broad theatre of active life, he would not be as a light hid under a bushel, but would diffuse spirit, and knowledge, and improvement, all around him.

Among other useful labors which Prof. Jackson has rendered to the agriculture of Maine, is the analysis of fifty-six specimens of limestone, taken from different localities, or quarries. Nearly every variety of limestone found in the state, he burnt in his laboratory, to know exactly how they burnt, the quality of lime that resulted, and the particular purposes for which they were fitted, as for agriculture, mortar, hydraulic uses, &c. These results are given in a tabular form, and show, at a glance, the constituent parts, and the relative value for particular purposes of each specimen.—We will publish in our next, the Professor's directions for constructing lime-kilns, and burning lime, with diagrams of lime-kilns.

**Meteorological Comparison between 1838 and 1839.***

| | 1838. | | | | | | | | 1839. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan. | Feb. | Mar. | April | May. | June. | July. | | Jan. | Feb. | Mar. | April | May. | June. | July. |
| Mean temperature of first half the month,.... | 35.42 | 18.85 | 35.46 | 39.72 | 51.91 | 71.11 | 71.04 | | 28.03 | 21.11 | 31.22 | 49.09 | 54.87 | 62.65 | 69.33 |
| Mean temperature of second half the month,.... | 27.51 | 13.25 | 38.69 | 42.13 | 61.93 | 72.99 | 74.02 | | 18.73 | 36.35 | 39.18 | 50.12 | 61.10 | 65.41 | 75.43 |
| Mean temperature of the month,..... | 31.46 | 16.05 | 37.07 | 40.92 | 56.92 | 72.05 | 72.73 | | 23.38 | 28.73 | 35.20 | 49.60 | 57.98 | 64.03 | 72.38 |
| Highest degree during the month,..... | 54. | 39. | 58. | 68. | 89. | 94. | 96. | | 55. | 50. | 64. | 74. | 83. | 86. | 92. |
| Lowest degree during the month,..... | 3 | —6 | 3. | 21. | 33. | 52. | 54. | | 12. | 5. | 2. | 30. | 34. | 48. | 55. |
| Range,..... | 57. | 45. | 55. | 47. | 56. | 42. | 42. | | 67. | 55. | 66. | 44. | 49. | 36. | 37. |
| WEATHER—No. of fair days,..... | 19 | 18 | 17 | 17 | 15½ | 20 | 21½ | | 14 | 10 | 18½ | 17 | 18½ | 15 | 17½ |
| No. of cloudy days,..... | 12 | 10 | 14 | 13 | 15½ | 10 | 9½ | | 17 | 18 | 12½ | 13 | 12½ | 15 | 13½ |
| Rain or snow on No. of days,..... | 9 | 6 | 6 | 11 | 11 | 8 | 10 | | 17 | 12 | 11 | 9½ | 12 | 15 | 15 |
| Rain gauge, including snow, inches,. | 2.25 | 2.30 | 2.09 | 1.53 | 7.45 | 7.60 | 1.72 | | 2.17 | 1.59 | 1.52 | 4.75 | 3.83 | 5.12 | 5.77 |
| WINDS—North, (No. of days,)..... | 2 | 2 | 8½ | 3½ | 3½ | 3 | 3½ | | 6 | 2½ | 9 | 7 | 4 | 3 | 3½ |
| Northeast,..... | 2½ | 2 | 4½ | 4½ | 2½ | ½ | ... | | 2½ | 3½ | 7½ | 4½ | 2½ | 3 | 2½ |
| East,..... | 0 | ½ | 1 | 1½ | 2 | 2 | ... | | 2 | 1 | 2 | 1½ | 1 | 2 | 3 |
| Southeast,..... | 1 | 3 | 6½ | 2½ | 1 | 13½ | 10½ | | 2½ | 2½ | 7½ | 9½ | 1½ | 8½ | 15½ |
| South,..... | 9 | ½ | ... | 4½ | 11 | 4 | 3½ | | 8½ | 4½ | 2 | 1 | 3½ | 1 | 1 |
| Southwest,..... | 6 | ... | ... | 2½ | 2 | ½ | ... | | 3½ | 2½ | ½ | ... | 3½ | 1½ | 1 |
| West,..... | 1½ | ½ | 1 | 3½ | 5½ | 6 | 1 | | 5½ | 3½ | 1½ | ½ | 1 | 1½ | 4 |
| Northwest,..... | 9½ | 14½ | 7 | 1 | 3½ | 1 | 9 | | 1 | ½ | ½ | 1 | 9½ | 1 | S. |
| Prevailing wind,..... | N.W. | N.W. | N. | N.W. | S. | S. | S. | | S. | S. | N. | S. | N.W. | N.W. | S. |

Quantity of rain and snow in 7 months of 1838, 24.83 inch.
do do do 1839, 24.75 inch.
Fair days in 7 months of 1838,..... 128
do do 1839,..... 110

## Tropical Plants—Spices.

*Cinnamon*, a tropical plant, growing in the East Indies, and is largely cultivated in the island of Ceylon, where there are more than 16,000 acres in cinnamon plantations. The bark of larger shoots or thick branches is coarse, the finer kinds are obtained from the smaller or more delicate shoots. The best is thin, smooth, shining, and of a light yellow color, bends before breaking, and is splintery in its fracture.

*Cassia.*—The cassia of commerce is nothing but an inferior quality of cinnamon. The finest cinnamon brings two dollars a pound, the second sort from one dollar thirty to one dollar fifty cents, and the third sort about a dollar. These are the prices in England, where the duties are from twenty-two to seventy-five cents per pound.

*Pepper* grows on a perennial climbing plant. The leaves are heart-shaped, with a glossy surface, and have little smell or pungency. Small white flowers grow abundantly on all the branches, and these are succeeded by the berries, which are green when young, and become of a bright red when approaching maturity. They hang in large clusters, like bunches of grapes; but the berries grow distinct, more in the manner of currants. It is raised in plantations of 500 to 1,000 plants, divided by hedges. Sumatra and the neighboring islands in the Indian Archipelago, produce the greatest abundance of this spice.

*Ginger* grows both in the East and West-Indies. It has a perennial root, with annual stems. The roots creep and extend under ground in joints, from each of which a slender stem shoots forth in spring, and attains

* We are indebted for these data to Dr. T. R. Beck, Principal of the Albany Academy.

a height of two or three feet. On the top of the stalk is a scaly spike, from each of which scales a blue flower appears. When arrived at maturity, the root is taken up, and forms the ginger of commerce. It is afterwards ground in flour or other mills for use.

*Nutmeg and mace* are the produce of the same plant. It has its male or barren flowers upon one tree, and female or fertile flowers upon another, being a dicœcious plant. The flowers are white, bell shaped, and grow at the extremities of the branches, two or three together. The embryo fruit lies at the bottom of the female flower, like a little red knob, which afterwards expands, and at the end of nine or ten months it has the appearance of a peach. The outer coat is fibrous and hard, about half an inch thick; and when arrived at maturity, this bursts, and a membraneous covering of a fine red colour is seen, enveloping the thin black shell which encloses the kernel or nutmeg. This covering is the mace of commerce. The mace resembles a verdant net work; and, when collected, is left in the shade to dry, after which it is pressed closely in bags and exported. The shell of the nutmeg is hard, and is subjected to the heat of fire before being broken. The kernel thus shrivels up, and is then subjected to the action of lime and sea water to destroy the vegetating principle.

### Honey-Dew.

George W. Johnson, in the Quarterly Journal of Agriculture, after enumerating, and, as he supposes, disproving the several theories which ascribes the honey dew upon plants, to insects and to the atmosphere, traces it, we think correctly, to a morbid state of the sap. He says—

"Heat, attended by dryness of the soil, as during the drought of summer, is very liable to produce an unnatural exudation. This is especially noticed upon the leaves of some plants, and is popularly known as *honey-dew*. It is somewhat analogous to that outbreak of blood which in such seasons is apt to occur to man, and arises from the increased action of the secretory and circulatory systems to which it affords relief. There is this great and essential difference, that in the case of the plants, the extravasation is upon the surface of the leaves, and consequently in proportion to the extruded sap, is their respiration and digestion impaired."

The remedy which Mr. Johnson prescribes for this disease, for such it evidently is, is a solution of common salt and water, applied to a soil in which the plant is growing. For, says he,

"If we admit that the irregular action of the sap is the cause of the disorder, then we can understand that a portion of salt, introduced into the juices of the plant, would naturally have a tendency to correct or vary any morbid tendency, either correcting the too rapid secretion of sap, stimulating it in promoting its regular formation, or preserving its fluidity. And that, by such a treatment, the honey-dew may be entirely prevented. I have often myself witnessed in my own garden, when experimentalizing with totally different objects. Thus I have seen plants of various kinds which have been treated with a weak solution of common salt and water totally escape the honey-dew, where trees of the same kind, growing in the same plot of ground, not so treated, have been materially injured by its ravages. I have noticed that standard fruit trees, around which, at the distance of six or eight feet from the stem, I had deposited, at the depth of twelve inches, a quantity of salt, to promote the general health and fruitfulness of the tree, according to the manner formerly adopted to some extent in the apple orchards of cider countries, that these escaped the honey-dew, which infected adjacent trees, just as well as those which had been watered with salt and water. I am of opinion that one ounce of salt (chloride of sodium,) to a gallon of water is quite powerful enough for the intended purpose."

### Economy of Fuel.

We published in our second volume an abstract of Dr. Bull's experiments with fuel, showing the quantity of heat produced by the several kinds of wood and coal, with many other facts of interest to the buyer and seller. Of Dr. Bull's work, Prof. Silliman remarked, that it was "one of the most important contributions of science to the arts and domestic economy, which had been made in a long time in this country." Mr. WILLIAM YATES, of Troy, has just published, on a broad sheet, a "Guide to economy in Fuel," in which he has comprised in a tabular form, the result of Dr. Bull's experiments, and added a scale of prices, which shows at a glance, the relative value of the different kinds of fuel, and which will enable the purchaser to decide correctly which it is the most economical for him to buy, at the market prices. Say, for illustration, that if hickory wood is $8 the cord, the relative value of other kinds of fuel are as follows: White oak $6.88, white ash $6.54, white beech $5.52, hard maple $1.80, white elm $4.64, soft maple $4.32, button wood $4.16, pitch pine $3.65, white pine $3.59, Schuylkill coal $7.79 the ton, Lehigh $7.48, Lackawana $7.48, Rhode Island $5.41, Worcester $4.46, Liverpool coal $18.27 the 100 bushels, Richmond coal $17.42, hickory charcoal $14.11, maple $9.69, oak $9.01, pine $6.37, &c. &c. The scale is graduated for the prices of hickory from $6 to $12 a cord. The table will be of great use to every buyer of fuel, who wishes to study economy in his purchases of this article, and is for sale at the bookstores. It should be recollected by the seller, that wood, upon an average, loses 42 in 100 lbs. by drying. Hence the disadvantage of taking green wood to market. And the buyer should remember, that he loses 13 per cent of the value of his wood by burning it when green. See vol. ii. p. 122, Cultivator.

### Sowing Evergreens.

A correspondent on Rock River, Ill. writes us as follows:—"In the month of April, 1838, I took about half a bushel of Red Cedar seeds* to my garden, poured them down, and mixed them with about four bushels of earth. This pile I mixed up and turned over four or five times during the summer. In April, 1839, I planted these seeds, dirt and all, in drills; every seed vegetated, and came up as well as wheat. Many of the plants died by the dry weather, but millions were growing finely in July.

"The white cedar (*Thuya orientalis,*) seed, sown in the fall, vegetates and comes up the following spring." This tree is usually called the Chinese arbor vitæ, and differs somewhat from the American species, best known by the name of white cedar. The American species grows to the height of 45 to 50 feet, has a beautiful foliage, and the timber is valuable for a great many purposes. The seed may be obtained in any quantity, and would be a valuable acquisition to the prairie west. The tree likes a moist cold soil.

* Probably cones, containing seeds.

### Crops, &c. in Virginia.

A correspondent writes from Columbus, Va. July 29: "Our crops in this section, (Fluviana county, in the valley of James' River,) are chiefly corn, wheat and tobacco, which are cultivated on the three field rotation. Thus corn or tobacco, wheat and a year of rest in clover, applying our manure in the spring to the corn or tobacco crops. The wheat crop just harvested is an inferior one, in quantity and quality, having been much injured early in the spring, by the Hessian fly, and afterwards more seriously attacked by swarms of the chinck-bug, together with rust in the late wheat, gave the crop the 'coup de grace.' Great apprehensions were entertained for the corn crop, from the swarms of the chinck-bug, which have always been one of its worst enemies; but they have fortunately passed off without much injury to it. The corn and tobacco crops are unusually promising."

Another letter, dated Greene C. H. July 15, says:—"The crop of wheat in this section, I do not think an average one. Oats and grass very heavy. Clover of last spring's sowing failed, owing to the drought. Corn very promising at this time."

### A New Implement,

Which promises to do the work effectually of a subsoil plough, taking only *half* the draught, and stones being little or no obstruction to it, has been announced in the Quarterly Journal of Agriculture, by Lawson & Son, as having been invented by a shoemaker. It is simply a heavy metal wheel, of about five feet in diameter, with slightly curved iron spikes or teeth inserted in its broad rim. It is drawn by a pair of horses, while a man steadies it behind with a pair of stilts, similar to those of a common plough, the which is fixed in a frame similar to that of a roller, but without support on either side. Messrs. Lawson suggest, that a pair of light wheels might be added with advantage, as tending to relieve the man considerably.

### Furrow-Draining.

This modern mode of improving lands is coming into extensive use in Scotland, as will be seen by the following quotation from the Quarterly Journal of Agriculture.

"One cannot go a distance from home without observing the extent to which furrow-draining is now practised. Almost every stubble and grass-field that is intended to be ploughed up, especially at the commencement of a lease, presents, by cuttings, stones and tiles, a pleasing scene of industrious enterprise, and of determined desire of improvement. At some places drains are cut in every furrow, [between the ridges,] from 15 to 18 feet asunder, at others in every other furrow, the distance no doubt, being regulated by the nature of the subsoil. Stones are entirely used in some places, but, in general, we should say, tiles alone are used, though in others, stones are used in conjunction with tile. This last mode is perhaps the best for filling drains, and is certainly preferable to tiles alone; but where stones are really scarce, much rather use tiles alone than neglect draining."

* * * "We are too apt to argue as if the properties of thoroughly drained land remained the same as undrained.—It is difficult to find an object to compare land with; but we may compare undrained land to a sponge containing a considerable quantity of water; a small addition to which makes the sponge overflow, and it is ever ready so to do. Drained land, on the other hand, may be compared to a sponge recently squeezed out and dried on the surface, which is ever ready to receive a considerable quantity of water, without making much difference on its appearance. Thorough-drains become almost dry in a few years; nevertheless, they are in constant requisition, and, but for them, water would be retained in the soil; but they are only completely tried as water-runs after heavy rains. Thoroughdrained land may be laid perfectly flat, in which case water enters the drains from every quarter."

### Economy of Power.

There are a great many operations on the farm which may be economically performed by a stationary power, that is, by water, by wind, by horses or oxen, or by steam. The same power that is applied to the thrashing of grain, or to the grinding of apples, may, if properly adjusted, and with a trifling additional expense, be applied to the crushing of grain for farm stock, or even grinding it for family use—to the cutting of hay and straw—to the sawing of wood, slitting boards, &c.—to turning the grindstone, pumping water, and various other stationary uses. A friend, whom we visited on Staten-Island, applied, he told us, his wind-mill, to either fourteen or eighteen different purposes. There is no doubt in our mind, that a vast economy of human power is capable of being made, and will be ere long saved, by a stationary power about the farm buildings. The thrashing machine is an indication of what may be done, in other branches of farm labor, in economizing time and money. A stationary power which can be applied to the various operations of the farm and outbuildings, must be a desideratum with every farmer, whose business is on any thing like an enlarged scale.

The Highland Society of Scotland, fully appreciating the importance of determining the most economical power to be employed in propelling the thrashing machine, offered a premium for the best essay upon the subject; and Mr. Robert Bridges became a competitor for the prize. In discussing the merits of the different moving powers, we find some data which, though not exactly adapted to our practice, are nevertheless worth recording in the Cultivator.

1. Mr. Bridges estimates the expense of a substantial *water-wheel*, including mason-work of fall or millrace, from £70 to £110—average £90; reservoir, water course and tail-race, say £150.

2. The cost of erecting a *wind-mill*, of the best materials and construction, including tower, at £350.

3. The expense of a *horse-wheel*, including the building to cover it, at £120; and the annual expense incurred by a pair of farm-horses, taking the average of half a dozen estimates of the best authorities, at £112.7.7. And that,

4. A four-horse power *steam-engine*, on the high pressure principle, which Mr. B. considers sufficient for farm purposes, will cost £110; engine house and chimney about £70; making a well from £5 to £7.

The cost of the several powers, including 10 per cent on the outlay, and the expense of driving them 42 days, the estimated time of thrashing yearly, are stated as below.

| | | |
|---|---|---|
| *Water Power*—Cost,..... | £240 | 0 0 |
| Yearly expense, inc. int.. | 30 | 0 0 |
| | £270 | 0 0 |
| *Wind Power*—Cost,..... | £350 | 0 0 |
| Interest and attendance,.. | 39 | 4 0 |
| | £389 | 4 0 |
| *Horse Power*—Cost,..... | £120 | 0 0 |
| Yearly expense,..... | 130 | 17 7 |
| | £250 | 17 1 |
| *Steam Power*—Cost,..... | £187 | 0 0 |
| Yearly expense, ..... | 33 | 18 6 |
| | £220 | 18 6 |

Mr. Bridges draws the following inferences from his estimates.

1. That water, where it can be obtained, is the cheapest moving power that can be applied to the thrashing machine; and that the advantage, in point of economy, is so obvious as to warrant the outlay of a much greater sum than that specified in the comparative estimate.

2. That next to water power, steam is the cheapest and most economical; and, in absence of a sufficient supply of water, nothing but the total want, or high price of fuel, can prevent its universal adoption.

### A Horticultural Exhibition

Will be held in Albany on the 18th of September, at which prizes will be awarded for the finest flowers, fruits and vegetables, and the competition unlimited. There are five dahlia prizes, of 20, 15, 10, 5 and 3 dollars, to the exhibitors of 25 flowers. A like exhibition will be held at Philadelphia on the same day, and at N. York on the 12th.

### Clayed Maple Sugar.

We have received from Henry Muzzy, of Rutland, Vt. 10 lbs. of maple sugar, of very superior quality, equal to sugar which sells at fourteen to sixteen cents per pound in the cities. Mr. Muzzy is a competitor for our premium for the best sample of this domestic sugar. We would hope to have many *such* competitors. By the bye, will Mr. Muzzy be so kind as to favor us with his mode of manufacturing and refining the article, with the estimated cost, for the benefit of sugar-boiling customers?

### Pitt's Thrashing Machine

Is highly commended in the American Farmer, by R. I. Jones. He states, that in the presence of his neighbors, he got out in fifteen minutes, ten bushels of wheat, "as clean as could be done by passing it through the fan three times, if got out in the ordinary way." He also got out in 4½ days, 1,081 bushels of wheat, and 336 bushels of oats, making an average of 240 bushels per day. The wheat was so thoroughly cleaned in the process, that it brought three cents per bushel above the market price. See our account of this machine in our Feb. No. of 1839, and Oct. No. of 1838.

### Agricultural School Books.

There are two works in the course of publication, which we hope to see published in volumes, and introduced as class books for the senior boys, in our common schools. They will effect more, in inculcating a taste for rural pursuits, and in advancing the substantial interests of the commonwealth, than all the English Readers, Columbian Orators, and such like books, which

now constitute the popular class books of our common schools. We want more working, and fewer idle men. Teach the young, that they can find profit and honor, and happiness in rural pursuits, and they certainly are to be found there in a greater measure than any where else,—the producing classes will be increased—the state will be correspondingly benefitted, and we shall be exempt from those commercial panics which periodically convulse the nation, and which may now be inflicted upon us at any time by our European creditors.

The two works to which we allude, are, first, "*Dictionary of terms used in agriculture, and in the sciences most intimately connected with its advancement,*" published in the *Genesee Farmer*, and written by Willis Gaylord, Esq. The *second* is "*Early lessons in scientific agriculture, or conversations on agriculture and the subjects connected with it, intended for the use of young men in and out of school.*" This is now publishing in the *Franklin Farmer*, and is said to be written by a Mr. Lewis, brother of the late Meriwether Lewis, but, at all events, a gentleman of an enlightened and useful mind.

### Short Horned Cattle.

Eleven short horned cattle, ten cows and a bull, passed through our city a few days since, on their way to Kentucky. They are described as first rate animals. They were purchased under the direction of Lord Althorp, in England, for Henry Clay, Jr. of Kentucky.

## THE BUDGET.

*Millers' Tolls.*—This subject has degenerated into a personal controversy, of little interest to our readers. Our determination to publish nothing further on the subject, we hope will be approbated by our respectable correspondent, if he will for a moment divest himself of personal feelings.

*Carbonate of Lime as a dressing for land.*—We have a communication from Mr. Joseph Warbasse, of Newton, N. J. who has been in the habit of applying to stiff clays a dressing of ground limestone, of a soft kind which abounds in his neighborhood, with very good effect. Mr. W. we believe, is a very good farmer, and has represented correctly the beneficial effects of the carbonate of lime upon his clays; but his philosophy is of the by-gone age. Carbonate of lime benefits clays by rendering them more porous, and consequently relieves them in some measure from surface water, but it will not render wet clays dry, without draining. It improves its mechanical texture, and adds to its chemical powers, and therefore promotes fertility.

*Buckwheat Straw.*—A Herkimer correspondent inquires in what manner buckwheat straw must be saved to render it good food for neat cattle? We cannot answer him from experience, as we do not cultivate buckwheat. But we have no hesitation in saying, that buckwheat straw, when intended for cattle food, should be saved with the like care as hay or corn stalks, that is, dried so that it will not heat and mould in the mow or stack, with the least possible exposure to rain and dew. The stalks being very succulent, we think the curing can best be effected in small heaps, or cocks, in the field, before the grain is thrashed.

*Queries.*—Mr. J. Robinson, of Marbletown, asks us several questions—as how he shall prepare his ground for wheat? How to rot his flax? If he had better put lime in his compost? If liming seed wheat will preserve the crop from insects? Whether seed wheat is best covered with the plough or harrow? &c. We have stated our opinions, and given directions on all these matters, in our previous volumes, so far as related to general practice, and we must refer to them for answers; for Mr. R. must be sensible of the impropriety of our repeating what we have recently published. But we will summarily observe, that his wheat ground should be *well* prepared, that is, made clean, and fine, and rich, by the compost he is preparing as a top-dressing; that his flax should be water-rotted, as directed in the Cultivator, vol. iii. p. 193; that a small portion of lime will benefit his compost; and that wheat may be ploughed shallow, or harrowed in, as the soil is heavy or light, wet or dry, the light or dry soil requiring the most covering—the object being to cover all the seed, as near the surface as can be to secure a healthy germination and growth.

*Italian rye grass.*—Mr. Benfoot, Richmond, Va. can obtain seed of Italian rye grass, of Thorburn, or Smith, or Weaver, seedsmen, New-York, at least in time for spring sowing, which season is to be preferred for sowing it. It may be sown precisely like other grass seeds, broadcast, by itself or with other seeds, and harrowed or bushed in.

"*Medicus*" will, on reflection, see the impropriety of answering his *special* inquiries through the Cultivator, inasmuch as our readers would not be likely to be profited by our answers, and he has not given us the opportunity of anwering them by letter. In regard to the corn, nineteen-twentieths of which was pulled up by the crows; a recurrence of the evil may easily be prevented by simply steeping the seed, and then mixing with the steep some tar dissolved in hot water. We are sure the crows will not eat it.

# CORRESPONDENCE.

### Diseases of Sheep.

Mr. Cultivator—In your May number, there is a letter from Lewis Bailey, of Fairfax co. Va. who desires information respecting the cause and cure of a peculiar disease which had attacked his sheep. From Mr. Bailey's description of the disease, I should infer that it was an inflammation of the brain, caused by confinement and bad air, which, it is well known in the "old country," will produce symptoms similar to those he mentions.

The following is the common and usually successful method of treating it in Great-Britain:—Two ounces of castor oil are given to each animal, and its head washed with spirits of hartshorn, or (as some prefer,) cold vinegar and water; and if affected with blindness, it is bled in the veins which run from the corners of the eyes towards the nose. Until recovered, the sheep are not allowed water, but supplied instead with as much strong green tea, sweetened with molasses, as they will drink. Of course, in order to ensure success, they must have roomy pens and plenty of air.

A SCOTCH PLOUGHMAN.

### Mildew—Root Culture.

In looking through vol. iv. p. 159, of the Cultivator, my attention was drawn to the comments of the conductor on an article headed "Mildew on Gooseberries and Grapes." The comments are based on the theory, that mildew is produced by a parasitic plant. If this theory be correct, it *will* or *ought* to apply to wheat and other grain. Facts,* reason and observation certainly go far to prove this theory fallacious. Mildew on wheat cannot be traced to the same cause, because the effects would disprove the cause. Were it occasioned by the parasite, the disease would be gradual and could be noticed in its progress, while on the contrary, it is known to be sudden, the effect attending the cause. One year ago, a farmer of my acquaintance had a beautiful field of wheat, which he examined in the morning, and found the grain had nearly approached the dough state, and the straw had a bright, healthy appearance. Being absent through the day, he found to his great surprise, in the evening, that his whole field was "struck with mildew," the straw much affected and discolored, entirely disappointing his hopes, in a single day. The grain weighed only forty pounds per bushel; the maturing process having been suddenly arrested. It is presumed, the wheat was affected the preceding night, and the effect was made visible by the sun's influence the following day, something like frost. Flat and low grounds are most liable to mildew, while those elevated and undulating escape. My opinion is—although there may be a combination of causes—yet in the main, it must be attributed to atmospheric influence, instead of the parasitic plant. The critical period is about the time of full moon, a fact not unsupported by philosophy.

Root culture has fairly commenced in this vicinity—our farmers are making large calculations in relation to its benefit. The early season was full wet and cool, which prevented the beets from vegetating well. The sugar beets prevail at present, but I expect to see the farmers give mangel wurzel the preference, when they shall have acquainted themselves with the diuretic character of the sugar beet. Mangel wurzel possesses also the important advantage of keeping longer and better. The vernacular name of this root being still preserved and perpetuated, I was amused to see the honorable conductor attempt, in a late number of the Cultivator, to translate pure German into English: "mangold," according to the translator, signifying "beet," and "wurzel, root, beet root." The conductor is unsparing occasionally of sarcasm and strictures with the correspondents of the Cultivator; so I hope I shall be pardoned for the censorial notice I have taken, either of his theory of mildew, or his German and English translation. Mangel signifies scarcity, making the literal translation scarcity root.†

We have just finished a very abundant harvest.

W. PENN KINZER

*Spring Lawn Farm, Pequea, Lan. co. Pa. July 27, 1839.*

* The "facts and reasons" of our correspondent go rather to confirm, in our opinion, than to disprove our theory, that mildew is a parasitic plant. Had the state of the atmosphere been noted when the wheat crop of his neighbor was struck with rust, we presume our correspondent would have described it as humid, hot and light, which is that condition, and perhaps the only condition, in which the seeds of this parasite are wafted on the "wings of the wind," attach themselves to the stems of plants congenial to their growth, and feed upon their juices. If the mushroom springs up in a night, is it at all strange that the minute plants of mildew should grow to maturity in a few hours? There are innumerable animalcula, whose figures cannot be discerned without the aid of a magnifying glass; and there are innumerable parasitic plants, whose seeds escape our observation. And if mildew is not a vegetable, we beg to ask, what is it?

† Loudon spells this root *mangold wurzel*, and gives the derivation of the term, which we adopted from memory.—*Scarcity* is the name of a *species* of the *beet* family. Our error consisted in translating mangel wurzel *beet root*, instead of *scarcity* beet root.

We invite, on all occasions, liberal criticism. It is the collision of flint and steel that elicits light.—*Cond.*

### The Peach Tree Grub—The Bee Moth.

*Jackson, Tenn. Aug.* 16, 1839.

Judge Buel—Dear Sir—I have noticed in your valuable paper several things recommended to destroy the grub in the peach tree; but from the experience I have had on the subject, I have seen nothing recommended, in my opinion, to cure the evil. Being myself fond of good fruit and raising fruit trees, I have for the last five years paid particular attention to the movements of the grub on the peach tree. I first discovered, during the summer and fall, in and under the glue near the roots of the tree, small knots of worms of different lengths, with a black or brown head. After making this discovery, the next winter and spring I commenced cutting in with a knife at the place I found they had entered the bark, and frequently found them eating under the bark of the root; and in taking up small trees to set out in the spring, I made it a rule to take a knife and follow them from the place they had entered, and would frequently find them under the bark, five or six inches from the place of entrance. After making this discovery I commenced clearing round the trees during the summer and fall, leaving the tops of the roots naked; and put round them fresh dry ashes, and sometimes tan from the tan-yard. This I found to be of considerable benefit in destroying the young grubs before they entered the root. Wishing to ascertain at what time the grub changes or leaves the root, I commenced an examination at different times during the spring and summer, and on the 20th day of August last, I discovered a great number had come out; and under almost every place where I found old glue at the surface, and from that 1½ inches under ground, I found the grub encased, sticking to the root of the tree. I found some of the grubs had changed and left the encasement; and at those trees I found a black, slender looking bug which seemed to be cutting the bark near the surface; and at those trees I found fresh glue and small young grubs. I then had all the grubs destroyed, the trees cleaned round, and fresh ashes put round some and tan round others. This year I commenced my examinations the 1st June; found no grubs out encased: on the 18th July I discovered a few; and up to this time I have not found more than 1½ doz. on from 55 to 60 trees. Last summer I had several old trees which appeared much on the decline; leaves yellow and fruit small; this season the leaves look well and fruit very good.

I saw last year recommended in your paper to plant peach trees in the yard so that the fowls could destroy the grub: this, I believe, will not answer, unless the grass, &c. is kept from about the roots; as the first grub discovered by me encased was on a tree in the yard, where the fowls had free access. I have taken up at different times peach trees on the decline, and found that the decline of the tree goes on in proportion to the number of grubs and the distance they have cut round the root. Some trees planted at the same time die earlier than others; this is owing to the number of grubs first deposited; the greater the increase, the sooner they cut round the root. From the discoveries I have made of the grubs, and the different experiments to destroy them, I am now fully convinced the better way to destroy them is while they are encased and about to change; and while the young grubs are in the glue before they enter the bark. Last spring I raised the earth a little on the roots of some of my trees, which I found an advantage in getting at the grub while encased, as they will approach near the surface; when the earth is raised and light it is very easy to get at them. I had concluded to send you in a newspaper which will go by this mail, four of the grubs incased, and two of the bugs, which you can examine. I think it likely by the time this reaches you, it will be a good time to examine for them in your country.

I see from your paper the bee moth is very troublesome in your section of country. When I commenced house keeping, I purchased a few stands of bees and the moth destroyed them all the first year. Upon examination, I found that the moth deposited the eggs in a web between the bench and the box: and as soon as they hatched they crawled up to the comb, and formed a web round them so the bees could not destroy them. I made it a rule to go to the stands two or three times a week, and brush off the eggs and web deposited; but finding this troublesome, I concluded to raise the boxes by putting small wedges under each corner: this I found of great service; but I discovered, unless the wedges were made very smooth, the eggs were frequently deposited under the wedges. I then concluded to drive a ten-penny nail into each corner and let the box rest on them, so the bees could pass under all round. Since I adopted this plan which has been twelve years, I have not, as I recollect, been troubled with a single bee moth. I am not in the habit of writing any thing to go in a newspaper,—but if you think the experiments I have made will be of service to the public you can publish them. Very respectfully your ob't servant.

SAMUEL LANCASTER.

### Various matters considered.

Dear Sir—A few days ago one of our most respectable physicians came into our store, opened a volume of the Cultivator, and read the communication of mine, saying that bots never injured the horse. He then remarked with emphasis, that he had seen the maw of a horse where the bots had eaten through it, the evidence of injury and consequent death of the horse. I answered, that in my view, it was evidence of another fact. That when the horse was dying and dead, his maw became cold and uncomfortable to the bots, and they would "go ahead" by perforating the maw, to escape from the cold. I asked if he had seen parasites crawl from animals soon after their death, to escape from the uncomfortable cold? That head lice run over the face of the human subject, after death, when the head becomes cold. He left us abruptly, without answering.

On reading the remarks of your scientific correspondent, J. M. Garnet, in favor of applying manures to the surface, rather than ploughing them under: I ask, whether the value of his experiment of spring ploughing over that of autumn, is not to be attributed to the

warmth the surface had received from the sun, together with looseness and mellow state of the ground, thereby admitting more air and rays of the sun, and rain, to promote the chemical action of the manure, which also had become warm from the sun?

Many farmers think fall ploughing best: others plough in the fall to forward their spring work: and others, who have tried it, think fall ploughing very injurious. I am not a farmer, and cannot give experiments. What I say on the subject is theory and observation.

It has been the practice of some farmers to make a dung heap, and let the dung rot for a year or more, before applying it to the land. Such manure retains all the earthy part, which I suppose the least valuable, and is in a delightful state to breed and feed grubs and other worms, to be carried with it into the field, and feed on the young plants. The grubs could not live in the early dung heap, while the heat and caustic gases are let loose by chemical action, causing the decomposition.

My observation has induced me to believe, that all manures produce their greatest effect on vegetable growth, when decomposed under the surface of the ground. Heat and moisture are the great moving causes of vegetation, and promote vegetable and animal growth. Without heat, we and every thing would be as adamant, as marble. All organized matter is hastened in its decomposition by chemical heat. The heated gases let loose during decomposition, I conceive, are good nourishment to, and great promoters of, vegetable life. The coarsest manure, even new straw, if ploughed under, will probably furnish the most nutriment, and best for Indian corn and potatoes, for the first season, and leave all the value of the manure of the dung heap for the next year's nutriment for wheat, and other vegetables or small roots,—so that the whole value of vegetable manure is obtained by ploughing under the coarse manure, and nothing is lost: which I suppose is nearly twice as much as when rotted in the dung heap; and more than when left on the surface of the ground.

I suppose that double the usual quantity of potatoes may be produced on an acre as are ordinarily raised, (particularly on alluvial ground, where the soil is rich and apt to pack hard,) by ploughing under so much as can be covered by the plough of coarse vegetable manure; even pea and rye straw, if the ground be ploughed deep and in narrow furrows, to make it perfectly fine and loose. The coarse manure keeps the ground loose, and enables the roots to extend,—retains moisture, so necessary to the growth of potatoes; and the gases let loose, stimulate the plants to vigorous growth. If these remarks meet the approbation of some farmers of liberal views, who believe that some improvements may yet be made in agriculture, I hope the experiment may be made, and reported in the Cultivator. By this mode of culture, I suppose the greatest possible produce of potatoes may be had.

Man is called a reasonable being, and he is so: that is, he has the faculties of reason given to him, and yet there exists not so unreasonable an animal as man. I stated to you in a former communication, the manner of the great gifts of the Creator to man above other animals, in improving the volume and faculties of the brain after birth: yet man, with all these gifts and faculties, is guilty of the greatest aberrations from duty, by omission and commission, in disobedience, in idleness and obstinacy, in refusing to cultivate and improve them.

What a wonderful and heinous crime was committed by our first parents, so to offend their Maker, as to entail so many and so painful diseases and death on all their progeny, even the innocent and amiable little cherubs of infancy and youth! It was disobedience. As we shall have to account for all these gifts and faculties, let us be obedient and active in their improvement, to the honor of the great donor, and our own profit; and not say *we have no time*, and that there is no improvement to be made, like the servant "who rolled his talent in a napkin and buried it in the earth."

We despise the reptile and little insects, because we are too indolent in observing their obedience to the Great Spirit, who whispers his laws to their inward ear; and how strictly they obey by industry and improvement of the talents committed to them.

See the little despised caterpillar, in her winged state, not carelessly depositing her egg for her future progeny, on a fence, the ground, or even on the trunk of the tree on which it is to feed, when called into active life in the future spring. No, with more skill than man ordinarily uses, she seeks a suitable tree, and deposites her eggs on the twig, near to a bud, where the leaves must shoot out by the genial warmth of the vernal sun, a little before it has wakened the egg into active life, ready for its food. Can she do any thing with more design and intelligence? So the honey bee builds its cell for the deposite of the honey, its food, and birth place and cradle of its future young, with the greatest possible economy for strength and space. No shape but the hexagon can furnish the greatest and most useful space and strength of structure. The bee has not to learn this by apprenticeship; its faculties are complete at its birth. They are natural mechanics, of the highest order, and all the workers understand and apply their labor alike. So the little mason bee, after perforating the hard cemented wall, to deposite its eggs, adds a store of food, and then closes the cradle with a door of moistened clay, to shut out enemies. The food is deposited with as much design, and probably intelligence, as man provides for his offspring, because the insect knows its young must feed while a helpless nymph or aurelia. You call this instinct. What is instinct? It is the knowledge of the law given by the Great Spirit, and obedience thereto Would to God than man cultivated his faculties so industriously, and obeyed so faithfully and certainly.

These evidences in the insect family show their strict obedience to the commands of their maker; yet a mistake or interruption by man, or other means, may be fatal to them; as their faculties are complete at birth, they have not the gift of reason and reflection to improve and repair damages, as reasonable man can; and they will not be called to account for that which was not committed to them.

Should rational man alone be guilty of wasting such precious gifts in idleness? No, man, to whom much has been given, of him more will be required.

The Good Spirit has bestowed on him greater powers of intellect, with wonderful faculties of reasoning and improvement, that he might be constantly employed in providing sustenance for himself and family. Most judiciously given, that he should not be idle. And enough is given, that he should not say that he has no leisure to contemplate and worship the giver with gratitude and joy. There is no age nor state of man, when he can say there is nothing more to be done or learned.

Being desirous of improving the agricultural interests, and believing your Cultivator to be eminently calculated to aid that laudable object, I have accordingly given you some of my cogitations. I am a merchant, and if I have an interval from business or conversation of three minutes only, I take a book or a pen, and never waste a fragment of time. As cents added make dollars, so minutes make hours. My offerings to you are a sacrifice, and not the product of leisure. I offer them as a setting pole to you in your arduous duties. When I write what you judge may not be of relief to you, nor of use to the public, cast them under your table. Most respectfully, DAVID TOMLINSON.

*Schenectady, Aug.* 14, 1839.

## How to pickle Tomatoes.

Pickle tomatoes in September, when they are just ripe (red.) Put them in layers in a jar with garlick, mustard seed, horse-radish, spices, &c. as you like; filling up the jar; occasionally putting a little fine salt proportionably to the quantity laid down; and which is intended to preserve the tomato. When the jar is full, pour on the tomato cold *cider* vinegar, (it must be pure) till all is covered; and then cork up tight, and set away for winter.

DAILY USE OF THE TOMATO.

1. Cut up with salt, vinegar and pepper, (as you do cucumbers) and eat away as fast as you can.

HOW TO STEW TOMATOES.

2. Take your tomato from the vine, ripe; slice up; put in a pot over the fire without water; stew them slow, and when just done put in a small lump of fresh butter, and eat as you do apple sauce. What you have left, put away in a jar for winter.

3. When stewed, beat up half dozen fresh new laid eggs, the yolks and whites separate; when each are well beaten, mix them with the tomato,—put them in a pan, and heat them up; you have a fine tomato omelet. C.

## Remarks on the Grain Worm.

*Princeton, Schenectady co. August*, 1839.

Mr. BUEL—Dear Sir—The early sowed barley has suffered more than usual this season, from the ravages of the grain worm, which may be owing to the fact, that there was very little grain of any other description, in this vicinity, in a proper state of forwardness at the time the parent fly made its appearance. There was no winter wheat sowed. Rye was beyond their reach, and spring wheat, except a few pieces, too early sowed, had not yet headed out. The early pieces of spring wheat have been much injured. It is worthy of remark, that in the immediate neighborhood of fields on which winter wheat was raised last year, (and of course destroyed,) the destruction is much greater this season, than it is generally in other places. The fly seems to prefer the wheat to every other kind of grain; it never escapes if in a proper state for their purpose. Rye is their next choice—then barley when neither of the others can be obtained. As far as I know, the grain worm has not yet been detected in any other kind of grain than the above. The experience of several years has taught us that the injury to spring wheat will be avoided, if not sowed sooner than the 15th or 20th of May, and that a good return may be realized. Rye, if sowed early, on land in good condition, will also escape, if it has not, from some cause, been retarded in its growth. The two-rowed barley, likewise, by delaying the sowing for a short period, will be out of the time of the fly; it is the early sowed only that is injured. I think the four-rowed, if sowed early, will escape—at least I have never detected the grain worm in it. Would it not, then, be well for our farmers, as far as the grain worm extends, to sow only such kinds of grain, and those kinds at such a time as will insure their escape from the ravages of that insect? Were such a measure simultaneously carried into effect, I have no doubt but that, in a short time, the grain worm would either entirely disappear, or become so reduced in numbers that their effects would be little observed.

When propagation ceases, the species whether animal or vegetable must soon become extinct. Now certain grains in a certain state of forwardness must be ready for the *parent fly* to deposite its young, which grain is the aliment of the grain worm for a time, and if these can by any means be withheld, it is reasonable to suppose that the propagation of that insect will be much diminished. Man has control over the increase of many animals, and this extends even to some of the insect tribes. The silk worm cannot propagate if the proper food is withheld, neither can those vermin who multiply in filth or putridity, when the cleansing process deprives them of their natural aliment, and I do not see why the increase of the grain worm may not also be kept in check on the same principle. If you conceive the above observations to be pertinent, you are at liberty to make such use of them as you think proper. Your opinion is respectfully solicited, as to the practicability of effecting, and probable result, if effected, of such a measure. I am, dear sir, yours respectfully, JAS. SMEALLE.

## Remarks on Farm Dwelling Houses.

JUDGE BUEL—Perceiving by the number of the Cultivator for the 1st of August, which has just reached me, that you propose inserting in the number for the 15th, essays and diagrams on "Farm Dwelling Houses," I would draw your attention to the remark of Mr. Sedgwick, in part first of his "Public and Private Economy," that "we have no good farm houses in America, and that he would be a public benefactor who should furnish a plan for general use." The English are too ornate and expensive; implying cheapness and subdivision of labor, and long tenure; the Americans are too large, ill contrived, and regardless of proportions, commenced on too large a scale, and never finished, or even if finished, most of the rooms kept for show, not use. It is bad enough where there is but one room, to sit, cook, wash, eat and sleep in that one room; but it is still worse to do so, as is very customary among our farmers, when you have a number of other rooms unoccupied. Nothing can be more ludicrous than to approach a house with lofty Corinthian pillars in front, and then enter by a back door, and find the whole family huddled together in the kitchen.

The only branch of the fine arts with which we really have any thing to do in this country, architecture, is sadly neglected. Would not articles upon the subject, particularly upon domestic architecture, come within the scope of your journal, and be of great benefit to your readers?

After fitness, convenience, and comfort, comes ornament—and the only ornament necessary in a farm house is that which is never considered, to wit, *proportion*.—With it, a house may be beautiful, though perfectly plain—without it, all the ornament in the world will but make it an object of ridicule to correct taste.

Intending to build a farm house shortly, my object however is to avail myself of your proposed publication, and with this view to inquire, what are the advantages of stone? Would not one story houses be better than two? Is it not advisable to dispense with chimnies altogether? And do we not have too many small windows instead of a few double windows, opening in the middle up and down? MOHAWK.

## The Silk Business.

J. BUEL, Esq.—Dear Sir—You are aware that I am strong in the faith, that this country will ere long, not only supply her own wants in the article of raw silk, but have a large surplus for Europe. You are also aware, that I have given much attention to the subject; in fact, have devoted my whole time to it for the last nine years, and that I have plantations for making silk, and factories for working it, and that thousands are now engaged in the same pursuit. Well, sir, notwithstanding all this, we have daily accounts of persons, who assert that the whole affair of silk culture is a "Humbug." Almost every paper I take up, has something of the kind, intimating that all the excitement on the subject at present, is merely for the sale of trees, "speculation," &c. and advising all within their influence to have "nothing to do with it"—that "we cannot raise silk in this country, and that it is preposterous to think of it." May I ask you, sir, to permit me the use of your columns to discuss the matter with any or all who make those assertions? My object is, to have the question settled beyond a doubt, and if any of the doubters will favor us with the grounds of their unbelief, in our ability to raise silk, or that we shall not in ten years, supply our wants, at least, from our soil, I pledge myself to examine the subject fully, and if I cannot answer them, will confess that I have been deluded and have deluded others into the belief, that *we can raise silk on all our farms, and to more profit than any other agricultural production, cotton not excepted.* I will now assert that we can raise silk *cheaper than France or Italy*, in any part of our country from Maine to Mexico, of a *quality equal to any in the world;* and shall esteem it a favor to all who are engaged in the business—in fact to the country at large, if any of your numerous readers, will, in reply to this, state *why* we cannot do it, or if they cannot refute the above, then *why* we shall not seriously engage in the cultivation of raw silk for exportation. SAMUEL WHITMARSH.

*Northampton, Mass. August* 8, 1839.

# EXTRACTS.

## Agricultural Chemistry.

BY HENRY R. MADDEN, ESQ. L. R. C. S. EDINBURGH.

[*From the Edinburgh Quarterly Journal of Agriculture.*]

We have now to commence the most important, but at the same time by far the most difficult branch of our subject; namely, the *Philosophy of Manure*, or the scientific principles upon which the cultivation of plants is founded. To accomplish this, with facility and perspicuity, it will be necessary to divide the subject into the following heads.

I. To give a clear view of the objects to be attained by the application of manure.

II. An account of the composition, and respective value, of some of the more important manures.

III. An account of the circumstances which should guide us in the choice of manure, and its application to various crops.

IV. The economy of manure, or the methods to be adopted in order to produce manure as quickly as possible, and likewise to apply it to the greatest advantage.

I. There is no point connected with agriculture, in reference to which more incomprehensible statements have been laid before the public, than those which have from time to time, and more especially lately, been published upon the subject of manure; and it appears to me that these could never have been conceived, far less made public, had due attention been given to that branch of the subject, to which the present section is devoted, namely, the objects to be attained by the application of manure: these we shall now consider. We have already shewn that by far the most essential point to be attended to in the cultivation of plants, is to present to them a constant supply of organic matter, in a state capable of being rendered soluble in water; and we have moreover seen that this is accomplished, by adding to the soil, at certain intervals, various refuse matters, which are technically denominated *manure*, by which means all kinds of *dead* organic matter, are re-converted into *living* organized bodies; and consequently the objects of manuring may be described to be, the conversion of refuse matters into useful food; or in other words the duty and object of the farmer, is to *convert manure into crops*. This fact, however, appears to have been most determinedly overlooked by many late writers upon the subject, and in consequence there has been more nonsense and absurdity published in reference to this point, than one could have possibly imagined. Thus, for example we are most seriously told by a late writer upon fluid manure, that "there are many plants which by distillation yield a strong *spirit*, which is so powerful a manure, that, from some experiments he has *himself* performed, he confidently looks forwards to the time when the *manure* for an *acre of land* shall be contained in a *quart bottle*." This statement is really almost too absurd too refute, were it not that the opinion appears to be gaining ground in some parts of England. I trust therefore that my more enlightened readers will excuse me for occupying some space in proving the impossibility of such a thing being accomplished. It must be evident to all, who will take the trouble to think of the subject, that the weight of the crop must always bear some proportion to the weight of the organic matter in the soil; for, of what do vegetables consist?—Of *water*, *organic matter* and *earthy particles*. Now the first and last of these are supplied by the soil itself (considered as a mineral substance;) but the organized portions can be supplied to the plant only by organic matter, previously existing in the soil; for although plants do obtain some of their *carbon* from the air, still this is but an inconsiderable portion, and moreover much of the *carbonic acid* which yields that portion, has been supplied by the previous decomposition of organic matter. We may therefore infer, that should the above-mentioned author succeed in manuring an acre of land with the *contents of a quart bottle*, he will in time discover that the same article will be almost sufficient to contain his crop. But the believers of the above doctrine may say that the author has proved it by direct experiment, and consequently he must be either willingly deceiving the public, or must have some grounds for his statement. Now I have no doubt that the author is perfectly satisfied in his own mind that he is writing the truth, and I shall endeavor to shew how he has been misled. His *powerful spirit*, was of course applied to *soil*, (probably very rich garden mould) and the result was that it had a most powerful effect upon the vegetation of that soil, and in fact its influence was felt by "many succeeding crops:" but this by no means proves that his spirit is really a manure at all; it may act only as a *chemical* agent in producing the more rapid decomposition of the vegetable fibre of the soil, and thus rendering it soluble; and consequently his crops were produced by the *original organic matter* of the soil, and not by his *powerful spirit*. For had he continued its application from time to time, and taken care to prevent any subsequent addition of fresh organic matter, he would have undoubtedly found that his soil became exhausted. Let any one who doubts this statement, take soil free from all organic matter whatever; for example, let him mix artificially chemically pure sand, clay, and chalk in the same proportions as they exist in the best soils; let him sow his seed, and then apply this *powerful spirit*, and observe the results; let him weigh the products, and then he will, beyond doubt, see the truth of the fact, that the weight of the crop is proportional to the weight of organic matter in the soil. If the object of a farmer was merely to obtain good crops for a few years, and afterwards to allow the land to lie waste and useless, then, indeed, some powerful stimulus, such as the spirit in question, would be of great value; but, what farmer, I ask, would so wilfully injure his own interest, by thus exhausting his soil, for the sake of procuring one or two good crops?* Some persons, however, may remark, that it would be extremely difficult to prove the relation between the organic matter in the soil and the crop; for example, they might quote the case of turnips, where, in a good crop, two or more tons are produced, by a space of ground, upon which not more than one ton of farm-yard manure has been spread; and nevertheless there is sufficient nourishment left for several crops afterwards without any addition. I shall therefore shew the manner in which this relation is to be discovered, or at least point out some circumstances, which are liable to be overlooked, but which are of the utmost importance in any investigation of the kind. In the first place, the real weight of dry organic matter in a crop is extremely small in comparison to the weight of the crop itself; for instance 25 tons of globe turnips are calculated to contain only two tons of solid matter, of which a part of course is saline. Hence in that turnip there is not 8 per cent of organic matter. The grain crops of course contain a far greater quantity, but even in them more than one-fifth is composed of water and saline substances. Secondly, the quantity of organic matter in a soil is very liable to be underrated; as will be shewn by the following calculation. According to the analysis of Sir Humphrey Davy and others, good soil contains about 11 per cent at least of dry organic matter; now, taking nine inches as the depth of such a soil (which is by no means great,) it will be found by calculation that one imperial acre will contain no less than 91 tons of dry organic matter, and hence, were the whole capable of being converted into turnips without loss, each acre of good soil would (theoretically at least) be capable of producing upwards of 1260 tons of globe turnips before the land would be completely exhausted! A careful examination of these facts cannot fail to shew to all, the fallacy of judging of the power of a manure by its effects when mixed with *soil*. Of course I do not mean by this to dispute the value of experiments with different kinds of manure on various crops; but merely have endeavored to shew that, when authors attempt to talk about concentrating manure to such an extent, that the contents of a *quart bottle* will supply nourishment to the crop upon *an acre of land*, they should, in the first place, prove whether their substance is really a manure, or merely a chemical agent; and certainly ought not to give publicity to any opinions performed in a manner so replete with fallacies. The following fact alone should be sufficient to silence at once all such idle propositions. We have every reason to believe that "*creation* has long since ceased and *conversion* alone continues to take place," or in other words, "*new matter* is never now produced, but merely *matter already existing* is constantly *changing its form*." Much more might be said with reference to this point, but we have subjects of far greater importance to engage our attention, than the refuting of such visionary speculations. To recapitulate, therefore, the objects to be attained by the application of manure may be stated to be, the preservation of a certain degree of richness in the soil, in order that the seed sown may be furnished during all the stages of its growth, with a constant supply of organic matter, in such a form as to be capable of being absorbed; and moreover this organized matter being supplied by otherwise useless, and in fact injurious, substances, one of the national advantages of manuring land may he said to consist in the conversion of noxious matters into useful and wholesome food.

II. In giving a general account of the composition and respective value of the more important manures, we must remember that there are many collateral circumstances to be taken into consideration, which, although they may be of no importance theoretically, are nevertheless of such great practical consequence, that, without due attention to them, no scientific account of manure can be of any value to the farmer. *Manures* are generally divided into *organic* and *inorganic or mineral*. Professor Low, in his excellent work on practical agriculture, adds an intermediate division of *mixed manures*, which will aid greatly the consideration of this extensive class of substances. Properly speaking, the organic and mixed are the only true manures, the purely mineral ones acting either as *chemical* aids by promoting putrefaction; as *mechanical* agents by altering the texture of the soil; or probably also as stimulants, by acting directly upon the roots of the plants themselves.

I. *Organic manures.*—By adding organic matter to the soil, we are of course supplying plants with all that they require for their nourishment; nevertheless it is not sufficient that this organic matter should exist in the soil, it must be in such a state as to be capable of being absorbed by the roots of the plants; for which purpose we have already seen that its elements must be in that peculiar state of combination which has received the name of *humin*; or, to express it otherwise, in such a form as to be rendered soluble in water when exposed to the action of the spongioles. From this fact we may make several generalizations with reference to the respective value of different kinds of organic manure. Thus *scientifically* speaking, a manure may be said to be valuable in direct proportion to the quantity of pure organic matter it contains, its tendency to decomposition, and its facility of being rendered soluble by this, and other changes which take place in it: *practically*, however, a manure may be said to be valuable in direct proportion to the length of time during which its influence is felt by the crops on the land to which it is applied: as also to its portability, to the facility with which it can be incorporated with the soil, and, *last not least*, to its cheapness and the readiness with which it can be procured. Hence the most useful manure would be one which combined these several advantages, namely, one which was cheaply produced, easily carried, readily mingled with the soil, and when there, keeping up, by its gradual decomposition, a steady supply of *humin*, or other soluble organic matter. To discover such a manure, or, still better, to ascertain some method of imparting such properties to the manures in common use, would be one of the most valuable acquisitions to modern husbandry. That *chemistry* may in time be capable of doing this, there is little reason to doubt, all that seems, necessary, being, that some person properly qualified should earnestly devote himself to the task. In the following remarks upon the nature and composition of the different species of manure, particular attention will be paid to these qualifications. For the sake of perspicuity I shall subdivide that class of organic manures into the *purely vegetable*, the *purely animal*, and the *vegeto-animal*.

(1.) The *purely vegetable manures* are, green plants, rape-cake, malt-dust, the steepings of the flax and hemp, straw, woody fibre, tanners' spent bark, &c.

*Green plants* are constantly used as manure, and are very useful for that purpose. they are seldom collected expressly, but are made use of on the spot where they grow; as examples of this, we may mention the ploughing in of grass, and the ploughing and hoeing of weeds during fallow and green crops. This manure consists chiefly of saccharine and mucilaginous matters mixed with ligneous fibre; and it consequently will be observed that it requires no preparation whatever; that it contains organic matter already in a soluble state, namely the sugar and gum, and the ligneous fibre itself is so moist and so completely impregnated with vegetable juices, that fermentation rapidly commences, and consequently a supply of soluble matter will be kept up until the whole is consumed. Care must be taken, however, in ploughing in green crops for manure, not to make too deep a furrow, especially on strong lands; as in that case the quantity of soil which covers the vegetable matter is so thick that it diminishes the action of the air, &c. upon it; and it is a well ascertained fact, that fermentation is retarded, if not altogether prevented, by compression and the exclusion of air. The best period for ploughing in green crops (provided other circumstances permit of it,) is undoubtedly when the plants are in flower, as at this period they contain the greatest quantity of sugar and mucilaginous matter; and, moreover, in the instance of weeds, it prevents the possibility of their propagating their species by the scattering of their seed. The importance of allowing this species of manure to ferment in the ground, instead of in a heap, is, that (in addition to the great saving of labor) the slowness with which the decomposition takes place, is supposed to tend to produce much more soluble matter and less gas than when it proceeds above ground. The parings at hedge roots, scourings of ditches, pond-weeds, &c. may be used in this manner.

*Rape-Cake* has been used with great success as a manure; this, like the preceding, contains a large quantity of vegetable matter, already in a state capable of being dissolved in water, its composition being mucilage, a large quantity of vegetable albumen, a little oil, and woody fibre. It has the advantage over the former of being much drier, and hence containing far more manure in the same bulk of material; but, on the other hand, it is by no means so easily procured, and is much more costly. It is chiefly used in fallow, before wheat, and should be sown *fresh;* and before its application, should be kept as dry as possible, as moisture readily causes fermentation to commence, which, when once set in, will undoubtedly proceed with rapidity, unless the substance is carefully dried. And here we may make the general remark, that all substances which contain much fluid, and more especially such as are composed of mucilage, sugar, and other soluble matters, should be used when perfectly fresh.

*Malt-Dust* is mentioned by Sir Humphrey Davy as a good manure, on account of the quantity of sugar it contains. I have not, however, been enabled to meet with any particular account of its application; of course, if used, it should be allowed to ferment in the soil. The washings and other refuse of distilleries, I am informed, are much used in some parts of Ireland, as an application to grass lands, and their effects are stated to be very powerful. This, of course, will depend upon all the vegetable matter which it contains being soluble, and therefore very probably absorbed at once, without undergoing any decomposition whatever.

The next manure we shall mention, is one which can be applicable in a few cases only, on account of the local nature of its production; we refer to the *water in which the flax and hemp have been steeped*. It is well known that flax and hemp consist of the woody fibres of these plants, and that one of the first steps in their manufacture is the steeping of the plants in water, in order that the softer tissues may ferment, and the ligneous fibre be thus freed from the useless parts of the vegetable: of course, therefore, the water in which these plants have been steeped, becomes fully charged with *soluble* and putrescent vegetable matter, and consequently acts powerfully as a manure, and moreover requires no preparation whatever, as fermentation has already commenced. It is not necessary, however, to dwell much upon this subject, as its use must, of course, be confined to those districts where flax and hemp are cultivated.

*Sea-weeds.*—All sea-shore plants, especially those which grow below highwater mark, and which belong to the natural families of *Algæ* and *Fuci*, &c. contain more or less *mineral alkali (carbonate of soda,)* and have long been used as manure by the farmers in the neighborhood of the sea. They are, however, so succulent and mucilaginous, that their effects are by no means lasting; even when placed in heaps and allowed to ferment, they produce but very little heat; in fact, appear rather to dissolve away. They consist chiefly of water, mucilage, a small quantity of woody fibre, and saline matter; according to the analysis of Sir Humphrey Davy, nearly four-fifths was water, which contained no *ammonia*, and consequently the plants possess no *azote*. When applied to land, their effects are felt almost immediately, as the mucilage dissolves as soon as the outer covering of the plants is destroyed by fermentation; but from its soluble nature, its effects are but slight, and after the first year, are no longer perceptible. The alkali they contain must also act as a chemical solvent, which will hasten their consumption. It has been proposed, (see vol. iii. of this Journal, 1831-2,) to collect the sea-ware, and dry it by spreading it like hay, by which means, of course, nothing but water will be lost, and at the same time, the bulk will be reduced to one-fifth, in which state the author considers it to be a very valuable manure, and calculates that it can be procured and carted off at half the price of straw. This suggestion, I think, might probably be useful in some of the farming districts which are situated near the sea, but still not close enough to use the ware in its fresh state, as undoubtedly the manure is a good one as long as it lasts. The drying, also, will prevent the decomposition from taking place so rapidly as if applied when fresh.

*Dry straw* of wheat, barley, and other grain crops, and spoiled hay, are always useful manures. Sir Humphrey Davy, in speaking of these, adheres to the opinion which pervades the whole of his work upon Agricultural Chemistry, namely, that they should be applied fresh, and that if allowed to ferment, a large quantity of nutritious matter is lost. As this is a point more severely criticised than any other statement which his work contains, and as, moreover, it is one of extreme importance, I shall here enter fully into the subject, and endeavor to reconcile, if possible, the exceedingly discordant opinions which are entertained regarding it. To proceed, let us state the question. *Theorists* say all manures should be applied to the soil as fresh as possible, because, during the process of fermentation, if allowed to proceed above ground, much valuable matter is lost which would otherwise have been available to the crops. *Practical farmers*, on the contrary, maintain, that experience has proved to them, that, unless the manure is fermented to a certain degree before it is applied, it is not of half the value; in fact, in many

* And yet there are thousands of American farmers who are continually pursuing this *sinful* practice.—*Cond.*

nstances it greatly endangers the success of the crop. How, herefore, can these be reconciled? On careful examination we shall see, that here, as elsewhere, all the difficulties will vanish when *theory and practice* are brought jointly to bear upon the subject, in such a manner that the one shall correct the other; or, in other words, when the question at issue is compromised, so as to suit the purposes of the *farmer*, and at the same time, not contradict the statements of the *philosopher*. In the first place, we may take it for granted, that in all cases where *theory* is opposed to *successful practice*, the former will eventually be found to be at fault, for it is perfectly evident that the knowledge of the true theory must improve, instead of opposing those practices which time has shewn to be the most successful. Nevertheless, in the case before us, there is nothing *radically* wrong in the theory, but it has evidently been carried too far; in fact, it has been worked out, (if we may use the expression,) as a chemical problem, without due attention having been paid to the end in view; namely, the rendering of assistance to the farmer in his all-important operations. There is no doubt, for instance, that *carbonic acid* and *aqueous vapor*, are given out in abundance during fermentation, and also in the case of animal manures, *carbonate* and *hydrosulphate of ammonia*, all of which are in certain cases of great importance to plants. But it is not sufficient to prove a fact scientifically, and at once apply it to practice, for, unfortunately, such is the imperfect state of science at present, that there is scarcely a single instance where some modification is not required, when the two are brought to bear upon each other. For example in the case in question, it is not sufficient to discover that some of the value of the manure is lost during fermentation, and in consequence, to argue at once that manure should be applied fresh; we must prove in addition, that by so doing the farmer will not injure his interests in any other way; that, when so applied, it will serve all his purposes as well as when previously fermented. This, however, we shall not be able to do, for the following reasons. What the farmer wants when he applies manure to his land, is, 1, to enrich the land in such a manner that it shall be immediately fitted for cropping, and hence, a part of his manure must be *already* prepared for use, namely, rendered *soluble*. 2, The substance applied, must be in such a condition as to be easily incorporated with the soil, by the subsequent operation of tillage; and consequently must be in such a mechanical state, as not to interfere with these operations. Now, it has been proved scientifically, first, that when vegetable matter, and still more so, when a mixture of animal and vegetable matters, are exposed in a heap to the joint action of air and moisture, the temperature soon rises; chemical changes take place; part of the *oxygen, hydrogen* and *carbon*, go off in the form of *aqueous vapor*, and *carbonic acid;* and at the same time a part of the remainder is rendered soluble, either in the form of *humin* or some such combination; but, secondly, it has been proved that when these materials, instead of being heaped up, are spread out, and mixed with mineral matter, as when ploughed into the soil, the changes take place much more slowly; and lastly, it has been *conjectured*, but by no means proved, that when those changes take place in the soil, more soluble matter and less gas, is formed, and consequently that the effects upon vegetables are more powerful. Let us compare notes: The first object of the farmer is to have a supply of nourishment in a state fit for immediate use; but this can only be obtained by fermentation; and in the soil fermentation takes place very slowly; consequently, when fresh manure is applied, the seeds run a chance of having to wait for their food: and, moreover, it is a generally acknowledged fact, with reference to all chemical changes which masses of matter undergo, that these changes proceed much more rapidly after they are once fairly commenced, than in the first instance. Again fermentation softens and breaks down long straws, &c. which would otherwise make the husbandry extremely foul. This objection, in fact, presented itself to Sir Humphrey Davy, and to obviate it, he proposes the straw to be chopped before it is spread. The proper question for discussion, therefore, is not merely, as we have seen, whether fermentation is accompanied with loss; but whether the extra advantages attending the use of previously fermented dung will compensate for the loss sustained during its preparation. All practical farmers will doubtless answer in the affirmative; but even here we must be cautious how we generalize the principle. Practical men are at all times too fond of making general rules; for example, in the case before us, most farmers ferment their dung to a certain extent, *often much too far*, and then apply it to all purposes indiscriminately, whereas it is clear that the necessity of fermentation holds good only in those cases where an immediate supply of nutriment is required; and consequently, when a fallow is manured, or when the manure is ploughed in with the stubble in autumn, in preparation for the next year's green crop, the manure may be used in a much fresher state, especially on strong soils. This fact has been well illustrated in a paper, on "A new method of applying manure," by Mr. Baker of Nassau Cottage, near Leeds, which appeared in the 6th volume of this journal in 1836-7. The same plan is likewise mentioned in British Husbandry, in the Library of Useful Knowledge, under the article manure, where it recommends the fresh manure to be laid on the stubble during winter, and the long-straws raked off before the spring ploughing. It has been remarked, however, that the practice of ploughing-in raw manure in autumn, as preparative for the next year's crop, will not answer on light soils, as in this case a large quantity of the manure is lost; in fact I have been informed by an excellent authority upon such subjects, that nearly double the quantity in such soil, is required to produce the same effect when applied in this way, as when fermented above ground, and ploughed-in immediately before the spring sowing. This I presume must depend upon the open texture of such soil, by permitting rapid fermentation and allowing the gaseous parts to escape, and likewise the soluble matters to be washed deep into the soil as soon as they are produced. Thus we at once see how to compromise the question, and we consequently leave it in the following position, namely, that undoubtedly loss of manure is sustained by allowing fermentation to take place before it is applied to the land; but that this loss is more than compensated for, by the peculiar advantages of fermented dung in all cases where an immediate supply of nourishment is required. But on the other hand, that in those cases where the manure is to remain some months in the soil before the seed is sown, it should unquestionably be applied in a much fresher state, although even in this instance incipient fermentation may be useful, by rendering it capable of being kept up with greater facility, under the disadvantageous circumstances in which the manure is placed, when mixed with soil. I do not, however, by any means wish it to be supposed, that I consider the question as settled; far from it; the above statement is merely a representation of the case as it at present stands; but obviously a great deal has yet to be learned, more especially with regard to the *science* of the subject. We must return, however, to the consideration of the individual manures.

*Mere Woody Fibre.*—At first sight one would be inclined to ask, when is mere woody fibre ever employed as a manure? But if we consider a little, we shall find two substances at least, which have been proposed as manures, to consist chiefly if not solely of this chemical compound—I refer to the refuse of the *tan-pit*, and *peat*. Both of these contain little or no substance besides mere woody fibre; for example, the operations of the tanner have removed all the soluble matter from the bark which he employs in his manufacture; and the long continued action of water has had the same effect upon peat. When we remember that the prime object of manuring, is to supply the plant with organic matter in such a state as to be capable of being dissolved in water, we must at once perceive that, theoretically, this manure is one of the worst possible kinds, if used in an unaltered condition, and practice has long ago proved the same fact; for Mr. Arthur Young, in his valuable "*Essay on Manure,*" states, that "spent bark seems rather to injure than assist vegetation;" and it is well known that no plant can grow in soil where there is an accumulation of peaty matter. Mr. Young supposed that the injurious nature of tanners' spent bark depended upon the astringent matter that it contained; but Sir Humphrey Davy has shewn, that the processes to which the bark is subjected, free it entirely from soluble matter, and that the injurious action most probably depends upon the bark having a great attraction for fluids, and at the same time being impervious to the roots of vegetables. On this account, therefore, the bark would absorb the soluble parts of the manure, and thus deprive the plants of their food as soon as it was prepared for them. Even Sir Humphrey Davy, therefore, allows that *mere woody fibre* requires to be fermented before being used as manure; since, from the absence of all mucilaginous, saccharine, and other soluble matters, there is little or no tendency to decomposition, and consequently this must be brought about artificially; the best mode of doing which, is either to mix it with a quantity of hot lime, or to follow the plan proposed by Lord Meadowbank, of mixing it with farm-yard manure. The success of this latter method being dependent upon the fact, that if putrefaction commences at one point of a heap of organic matter, it will undoubtedly spread through the whole mass. In reference to the action of lime upon peat, &c. we shall say nothing at present, as this will be fully treated of when we consider the mixed manures.

(2.) *Animal manures.*—It is generally allowed that these require far less preparation, than those derived from the vegetable kingdom, since they have a much greater tendency to putrify, and hence of course do not require to be heaped together in order to produce this effect; besides their mechanical form is seldom such as to interfere materially with the various operations of tillage. They are comparatively seldom used alone, but nevertheless require consideration here, in order that the subsequent remarks upon the *vegeto-animal* composts may be more fully understood. The chief of them are—the various kinds of excrement, urine, hair, woollen rags, feathers, dead animals, fish, blubber and horn.*

Of the various kinds of *excrement*, *night-soil* is by far the most valuable. This substance has been long used by the Chinese, who mix it with one-third of its weight of marl, and dry it in cakes by exposure to the sun. These cakes are said to be void of all disagreeable smell. It is likewise prepared with quick-lime in France, and sold in the form of a dry powder, under the name of "*poudrette,*" in which state it is sown with the seed in the same manner as rape-cake; the admixture of lime is merely to prevent the disagreeable odour which this substance otherwise possesses. There exists many prejudices against the use of this truly valuable manure, but it is needless to say that these are entirely without foundation.† The other species of excrement which have been used as manure, are those produced by the various birds and animals which are kept in a domesticated state. These have been found to be of very different degrees of power; the most valuable is supposed to be that of the *pigeon:* this, however, can only be used where great numbers of these birds are kept. It is stated to contain 23 per cent of soluble matter when recent, and hence will require no preparation before it is used. The next in order is the cleaning of *poultry-houses;* this is very similar to the last, and of course is produced in much greater quantity. A good method of using these manures, would probably be, to form them into compost with earth, dry leaves, &c. thus imitating the process which goes on in woods frequented by the wild pigeon, where the soil is found to be peculiarly rich and valuable. Of the excrementitious matters produced by the various domesticated animals, that of the *rabbit* is stated to be the most valuable; but of course it is liable to the same objections as those above mentioned, namely, the small quantity in which it is generally procured. Some farmers, however, have gone so far as to say, that is is profitable to keep rabbits for the sake of their manure; this, however, must be under very peculiar circumstances. Of the remaining manures of this order, that of the *sheep, horse,* and *swine,* are generally considered more powerful than that produced by *cows*. It is needless, however, to enter fully into the consideration of all these, as the whole of them act in pretty nearly the same manner, only with slight differences in their power. The composition of all this class of substances is the debris of the food taken by the animals, mixed up with bile and various other matters.

*Urines.*—These are all very powerful manures, but it is curious enough that, with one exception, they are all improved by putrefaction. The best way of using them undoubtedly is, to have the stables, &c. so constructed that all the fluid parts are carried into underground tanks, where they accumulate, and can either be raised by a pump and applied in the liquid form, or, which is probably the better plan when circumstances will permit of it, the tanks may be filled with porous earth, and the whole will then form an exceedingly rich compost: probably peat might be advantageously used for this purpose. In whatever way, however, this manure is applied, it is at all times most valuable. It abounds in *ammoniacal salts*, which have been supposed to be the cause of their injurious action when fresh, as it has been proved that solutions of these salts, unless extremely dilute, act injuriously upon plants; this, however, can hardly be the cause, as putrefaction increases instead of diminishes the quantity of ammonia. The one exception which I mentioned is the urine of the *sheep*, which is stated by all practical farmers to act as manure as soon as it is formed. Now, it is not easy to understand how this should differ from all other kinds of urine; but with the testimony of all farmers in its favor, it would certainly be worth while to have the point carefully examined into, before we endeavor to explain it.

*Hair, Woollen Rags Feathers, &c.* are all valuable manures, when they can be procured in sufficient quantity. All woollen rags are carefully collected by the inhabitants of the South of France, for the purpose of burying them at the foot of their olive-trees. Their composition appears to be chiefly gelatine and albumen. They decompose much more slowly than the generality of animal manures, and consequently, will probably be found particularly useful in those cases where a supply of *nitrogen* is required during the latter part of the growth of a crop, as for example in wheat. This subject I shall revert to when speaking of the application of manure to various crops. In the manufacturing districts the refuse of the different woollen factories will be extremely useful in this respect.

*Dead Animals and Fish.*—The former of these are very seldom used by the farmer, although it is evident that they would be extremely useful. Sir Humphrey Davy very properly proposes, that animals which die from disease or accident should (after having the skin removed) be covered with five or six times their bulk of soil mixed with lime, and allowed to decompose for some months, when the whole will be found to constitute a rich compost; the disagreeble smell of which may be prevented, by mixing lime with it when about to be turned. The refuse of slaughter-houses might be advantageously employed in this manner. Dead fish have been long known as a very powerful manure; they of course, however, are liable to the objection already stated, namely, the difficulty with which they are procured, except in certain situations. When employed, they must be mixed with soil and applied fresh, care being taken not to use too great a quantity, as they are very liable to produce rankness in the crop; their effects are felt for many years. The refuse of the fishmarkets, and that of fishing-villages, ought on this account to be carefully collected, and made into compost. *Guano*, a most valuable manure, which occurs in the South Sea Islands, in beds of from fifty to sixty feet thick, has been analyzed by Fourcroy and Vauquelin, and found to have a composition similar to the dung of sea-birds. This will account for its value, as in that case it will consist chiefly of the debris of fishes, mixed up with the ordinary constituents of the dung of birds.

*Blubber and Horn* are both very useful manures, when they can be procured; they both are composed almost entirely of animal substances, capable of being rendered soluble in water during putrefaction, and are at the same time in such a state that decomposition goes on slowly. We now come to the consideration of by far the most important of all species of manure, namely,

(3.) The *Vegeto-Animal* manures, or those which contain a mixture of animal and vegetable substances. These are chiefly the different varieties of stable-manure, &c. which are known under the name of "*farm-yard dung.*" This, from its abundant production, and many other causes, is beyond doubt by far the most valuable manure at present known. For example, it is valuable in a scientific point of view, because, being a mixture of animal and vegetable matter, it ferments easily, supplies a large quantity of soluble matter, and from its nature is capable of yielding nourishment to *all* kinds of vegetables. And practically, this manure recommends itself to the farmer,—1, Because it is necessarily produced in considerable quantities upon all farms where stock is kept; 2, Because, from this circumstance, it is evident that none of the crops consumed on the farm can be considered as lost; and 3, Because experience has long ago shewn that no manure is so generally useful.

It is needless to attempt to state the composition of a substance which must be of necessity so various; a few practical remarks will be, therefore, all that I shall introduce here. In the first place, it will be evident to all that the value of this manure will differ greatly according to the relative importance of its different ingredients: as, of course, since animal matters produce the greatest quantity of soluble nourishment, the greater the proportion of this class of substances the more useful will the compound prove. Again, it has been shewn that the period at which it is applied influences greatly its beneficial effects; for if allowed to rot away until it is reduced to the state of *soft, dark, unctuous mass,* not retaining any remains of vegetable structure, it can be easily shewn that more than one-half of its most valuable constituents have been lost. The remarks, however, which we have already made upon this subject of fermentation will, of course, apply here. It is stated in the Library of Useful Knowledge, in the article on British Husbandry, that the manure of fat beasts is much more valuable than that of lean cattle: this will very probably be the case, and, of course, depends upon the food with which the animals have been supplied. Thus, ten carts of dung from animals fed with oil-cake, were found equal to sixteen from those fed upon turnips. From this fact, therefore, it would appear necessary, that, in experimenting with this manure, we should pay attention to the food with which the animals have been supplied during its production. Much more might be said regarding the formation and management of dung-heaps; but this would involve us too much in pure practical farming.

* *Bones* are often enumerated among animal manures, and their origin would certainly justify such an arrangement, but from the large proportion of earthy and saline matter they contain, they will be more conveniently treated of under the head of mixed manures.

† Animalized carbon appears to owe its fertilizing powers to this substance.

## Twelfth Annual Fair of the American Institute.

This anniversary celebration of industry and the arts will open to visiters at Niblo's Garden, in the city of New-York, the 7th of October next, at 10 o'clock, A. M. All articles brought to the garden are required to be entered by the clerk of the fair in a book. Those intended for competition for

premium must be delivered either on Thursday, Friday, or Saturday, October the 3d, 4th and 5th, and reported to the clerk as for competition. If they are delivered at an early hour, and places assigned in the beginning of the fair, their location will not be changed, unless the general arrangements of the exhibition, in the opinion of the managers, render it desirable. They should be accompanied with a written description, as an effort will be made to publish a catalogue the first week of the fair. The accommodations of the garden have been greatly extended and improved since the last year. Two rooms, each 110 by 25 feet, have been added, adjoining and communicating with the great saloon, directly north.—All the departments of industry and of the arts, in the various sections of our country, are invited to make contributions of their choice specimens.

The deep interest taken at the last fair in the exhibition of cattle and farming stocks, and their importance to agriculture, the promotion of which is enjoined foremost in our charter, and the consideration that agriculture lies at the foundation of all production, has induced the Institute to resolve on another cattle exhibition and sale. Accommodations will be provided for pure blood cattle, horses, and extraordinary breeds of sheep, swine, &c. contiguous to the garden. Certificates of pedigree should be provided.

Much the greatest proportion of manual labor employed in production, is applied to agriculture. Here, then, is presented the widest field for the introduction of labor-saving machines. The farmer is much more secluded from the knowledge of these improvements than the manufacturer. The latter, availing himself of his advantageous situation, has, by the employment of machinery, dispensed with the greatest part of the most irksome toil and drudgery formerly required in his occupation.

The coming fair will present to the farmer the best opportunity of which he can possibly avail himself, for learning the properties of the newly invented, and the most valuable agricultural implements and machines, as they will be brought together for his examination. Those we intend particularly to benefit should not fail to be present.

We hope to see all the varieties and improvements of the plough. The Institute, by turning their attention to this indispensable instrument of husbandry, begin already to witness the benefits. One of its members has been induced to attempt the construction of a sub-plough, which promises great utility. Another has produced a steam plough, which has gone to the western prairies. It is ascertained that many of the ploughs in ordinary use require from 25 to 33 per cent more power to operate them, than those of the best improved construction. Even in Great Britain, with all their boasted culture, it is estimated that more than 1,000,000 of horses are employed in husbandry, and to a great extent the ploughs in use require 33 per cent more team than those of the best formation. The annual cost, only, at $25 each, amounts to $25,000,000. It will be evident, therefore, that in so great an agricultural country as ours, in many parts of which very defective ploughs are in use, the substitution of the most perfect construction, universally, would save millions in horses every year, and essentially contribute to our agricultural resources and national independence.

Inventors, manufacturers and owners of machinery are informed, that the Institute, to prevent disappointments, have purchased and located on the premises a steam boiler, of sufficient capacity to operate machines of the most massive construction.

Arrangements are making for a full display of American silk in all forms, from the cocoon to the finished fabric. Much good, we think, will result to the country from the preparations for the raising of silk. Our climate is peculiarly congenial to the insect that produces. The women, children and infirm persons scattered among our population, from whose labors little or nothing is realized, are competent to supply twenty millions of dollars value in silk per annum, instead of which we have imported in a single year more than that amount.—a sum double the value of the whole exported products of the United States, for the same period, from all our boasted fisheries, with all the exports from our forests, of skins and furs, lumber, masts, and all our manufactures of wood; our naval stores, tar, pitch, turpentine, pot and pearl ashes, &c. and also from our almost innumerable farms; all our exported beef, tallow, hides and cattle, butter, cheese, pork, bacon, horses, mules, sheep, &c. with our entire exports of wheat, corn, and flour, superadded. The whole catalogue of this formidable portion of a nation's hard earnings for foreign exportation, did not in 1836 equal twelve millions of dollars, while the imports of silks the same year, exceeded twenty millions of dollars; and by including silk and worsted goods, of which silk constituted an important part, they amounted to over twenty-three millions five hundred thousand dollars. This alarming statement, the report from the treasury department will fully verify. Is it not high time that silk should command our attention? The mulberry is essential to the worm that produces it. All its varieties should be collected at this fair, with detailed facts, showing their adaptation to soil and climate, and the quantity of sustenance they afford.

The general effect of the silk excitement, we think, cannot but be beneficial, as it will fill our country with mulberries, and every where afford food for silkworms; but it is vastly important in the commencement, that the kind best suited to our soil and our climate, and most bountiful in their healthy foliage, should be selected.

The early success of the silk culture will depend much on the perfection of machinery. The reel ought first to engage our attention. For ordinary household use, it should be cheap and simple in its construction, and its merits should be made public. For this purpose a gold medal will be awarded at the coming fair, for the reel which shall best answer the above description.

The public are looking with great interest to the investigations and experiments for deriving sugar from the beet.—We anticipate important improvements from the ingenuity and perseverance of a member of this institute, whose indefatigable exertions have been for several years applied in accomplishing a speedy and economical process for its extraction. Those who have witnessed some of the experiments have become convinced, that the sugar beet will, ere long, successfully compete with the sugar cane.

The manufacturers of cottons and woollens have at out latter fairs, come forward with renewed spirit. It is hoped that it will not only continue, but increase. The additional room which the new buildings afford, will enable the managers most advantageously to accommodate the exhibitors of cloths.

New machinery for the spinning of flax has been constructed. Specimens of the yarn should be forwarded, detailing the preparations necessary, the construction and operations of the machinery, together with their cost. Flax formerly ranked among our principal staples. For the last fifty years its culture has been on the decline. A perfect flax spinning machine would create a demand for flax, and soon cause it to be extensively cultivated.

Manufactures from various metals have, within a few years, increased and improved with great rapidity. Twenty-five years ago, domestic hardware was scarcely known in the New-York market. In 1836, it was ascertained that there had been actually sold within the city, in one year, more than seven millions of dollars value.

The specimens of iron castings brought to the last fair, conferred on the manufacturers the highest credit. The varied and perfect fabrics from malleable iron, (unknown until recently among us,) in an economical point of view, afford great promise.

In the manufactures of wood, particularly household furniture, useful and ornamental, we need not fear a comparison with the workmanship of any country. A few years since, most of our fashionable furniture was imported; our ingenious and skilful mechanics now successfully compete in foreign markets.

We now supply a great proportion of the glass which we consume, and have made profitable shipments abroad. The skill we possess has all been acquired within a few years.—The acquisition of the same skill in other countries, has required centuries.

Our hats and leather are not only sufficient for the home demand, with the exception of small quantities of the latter article for particular uses, but a large amount is also realized from their exportation. There are thousands of other articles worthy of particular notice, and many, perhaps more worthy than some we have named. To show the magnitude of our manufactures, we feel warranted in stating in general terms, that the exports to the south and to foreign countries of all the varieties of our manufactures, (produced in the northern and middle states,) though yet in their infancy, far exceed all our exports of agriculture from the same sections, and constitute our main reliance for meeting the demands continually accruing from abroad. Every thing in the past, promises well to our country for the future. We have only to rely on our own energies and resources.

An annual display, in this great emporium, of our best specimens, is signally calculated to awaken the genius of invention. Accordingly, every exhibition has brought forth some new improvement, till then not known. The multitude of competitors, the vast assemblage of inquisitive and scrutinizing visitors, whose attendance is anticipated by the exhibitors even before they commence making their specimens, the desire and the hope of winning the prizes, create an intensity of emulation among the competitors, that brings into action all their energies, and draws forth all their resources.

There were, at the least, 150,000 visiters entered the garden at the last fair, and about 1800 exhibitors presented themselves. Contributions were received from about 1500; they being all that were deemed worthy of exhibition. Among them were many entirely new; and others, not new, greatly improved. It will be readily seen, when each contributor brought on an average ten to fifteen articles, that even the names would occupy more than the space devoted to an ordinary circular.

The excitement created does not terminate with the fair. A determined purpose, an abiding resolution is made, to persevere, so that the close of one fair is only the signal of preparation for another. It is not within the scope of human invention to devise a plan, for carrying out the noble work of national industry and improvement, more general, pervading, and effectual. The belief that our country required a national institute for the general promotion of industry and the arts, induced the proposition for a charter, and the city of New-York was selected as the appropriate location. The provisions of the charter were accordingly made to embrace the whole Union. Contributors and visitors, of all occupations and of every state, are therefore invited to join in the celebration.

A formal *resolution* of a large meeting, consisting of most of the distinguished members of the legislature, and others, held at the Capitol in Albany, was unanimously adopted, requesting the American Institute to call a convention of silk culturists, and those friendly to their interests during the ensuing fair. We, in conformity to that resolution and in behalf of the institute, hereby give notice that a suitable room will be provided for that purpose, on the evening next succeeding the evening on which the anniversary address is delivered. All who feel an interest in this subject are invited from this and other states. Silk culturists and silk manufacturers are particularly requested to bring forward all their best specimens, and to prepare themselves to give such useful information and explanations as will best promote this new branch of domestic industry. An examination of the best specimens that can be produced, and the interchange of ideas among experienced silk culturists, cannot fail to elicit important information, which, through the convention, may be spread before the public.

The essential prerequisite for the production of silk is already accomplished. Numerical calculation can scarcely keep pace with the multiplication of the mulberry. Should the enthusiasm for its propagation continue, America will soon afford more sustenance for the silkworm than the whole globe beside.

The encouragement given by the presence of such of our fellow-citizens as have been distinguished by high official stations, or for their wisdom or their learning, is most propitious to emulation and improvement. While they confer dignity on the anniversary, they operate as a powerful stimulus to greater and nobler efforts. Much profound reflection will be afforded them by this compressed view of a nation's unparalleled progress in the arts. The effect of minds and hands operating under the genial influences of constitutional liberty, will be impressively illustrated, imparting life and energy and confidence to industry, and awakening and quickening the latent powers of invention and genius.

At each of the eleven preceding fairs, the exhibition rooms have uniformly, at an early hour, been adorned with the delicate and tasteful productions of female ingenuity and skill, and the gaiety, fashion and beauty displayed through the day and evening by the fair visitors, have always been among the strongest attractions of the celebrations. They have shown that our Institute is their favorite institution. It has not been the gay tinsel and the glare of unsubstantial show, or unmeaning curiosity, that have moved them. It is a portion of that diffusive patriotism and pride of country which they have imbibed, and which every real American experiences, from the proud reflection that the triumphant displays are the exclusive products of their own native America.—They are respectfully solicited to honor the Twelfth Annual Fair by a continuance of their exhibitions, and with their accustomed cheering presence and approbation.

At the four last fairs, there were awarded as premiums, one hundred and twenty gold medals; six hundred silver medals; and about fifteen hundred diplomas—solely at the expense of the Institute. The managers do not intend to diminish the appropriations for rewarding merit, whilst the liberality of the public confers the power to bestow them. The determination of the merits of the respective articles entered for competition, will be submitted to competent and disinterested judges. If within the short space allowed for receiving, entering, arranging, and delivering articles, amidst the throngs of exhibitors and visitors, some errors should occur, or some omissions happen, which provoke the vociferations of disappointed expectation and passion, or which inconsiderate wantonness may distort and magnify—still, we trust, a considerate and liberal public will not expect the managers to be diverted from their arduous, engrossing and important duties, to indite contradictions and replies. Twelve years of faithful disinterested devotion to a cause which lies near the heart of every genuine American, have placed the American Institute in a position from which it cannot be expected to descend to repel attacks which have always proved harmless in effect, whatever may have been their design.

## Agricultural Geology.

[*From Prof. Jackson's Third Geological Report.*]

Of all the arts, I know of none more likely to be improved by geological examinations, than that of Agriculture; since the composition of soils indicates their fertility, or capabilities of improvement, and the causes of barrenness. The science of geology demonstrates the origin, and distribution of the mineral matters, constituting the basis of all soils, to which they chiefly owe their peculiarities. I know that it is a favorite opinion with many agriculturists, that the mineral constituents of a soil have but little, if any influence on their fertility; and that they suppose the whole secret resides in the presence of certain vegetable or animal matters; but such a theory is at once exploded by an attentive examination of the natural soils, with their peculiar vegetation; for it will be seen that there are regular zones of vegetation, peculiar to each geological district, in which the same vegetable or animal matters are present, but which differ essentially in their mineral constitution. Thus how different is the soil derived from granitic rocks, from that which is formed by the disintegration and decomposition of limestones and slates. How peculiar is the vegetation which follows the great bands of trap rocks, and how remarkable is the growth on the ancient clay loams, of tertiary deposition. Whoever considers the attempts made to raise wheat upon soil totally destitute of lime, will at once appreciate the value of that mineral substance, and its importance in the production of grain. An imperfect or blighted product is sure to follow the planting of this grain upon soils destitute of lime, while it is well known that certain districts, where the soil contains this mineral, are always favored with luxuriant and heavy crops. This is one of the settled points in agriculture, and one which every farmer should duly appreciate, if he wishes to prosper in his art. Indian corn requires but little, if any lime, and hence we see excellent crops of that grain raised upon sandy plains, unsuited to wheat. Rye, likewise, will do pretty well without it, but it is always more full and heavy where it exists in the soil; and by attending to this circumstance, the value of the crop may be greatly improved.

The overlapping of soils, from diluvial causes, is also a point greatly illuminated by a knowledge of geology; and we are able, by means of a good geological map, to predict the nature of a soil in a given district, with as much certainty as we refer back certain rounded and transported stones to their native beds. It is also easy by the geological and topographical features of a country, to predict the nature of the alluvial or intervale soils, which have been washed down from the hills and mountains by brooks, rivers and rain: and such knowledge not only helps us to account for the phenomena in question, but also in the selection of suitable grounds for our various crops.

The situations in which are found substances capable of being used for the amelioration of soils, is also pointed out in a geological survey; and a scientific farmer soon learns to avail himself of the natural resources of the country. We also are able to indicate by the natural growth, the nature of the soil, and to point out to the farmer tracts of country which will form the best settling lands; and by the application of the science of chemistry, we indicate to him the peculiarities of the different kinds of soils, and the modes of renovating those which are deemed to be exhausted.

There are certain tracts, upon which gypsum acts favorably, while on others it does no good; and there are those where liming is required, and others where it is not. Some soils require the introduction of a quantity of vegetable matter, and we show the farmer the cheapest mode of introducing it; others are wanting in certain saline matters, required for peculiar vegetation, and the nature and quantity of such matter required, is indicated by a chemical analysis of the soil. Enormous quantities of valuable materials in manures, are lost by a want of chemical art in preserving them, and still more is wasted by improper application. The causes which effect these results, are well known to chemists and geologists, and by special examinations, the knowledge is applied to particular cases with skill, and with certainty in the result; whereas vast amounts of both time and money are lavished in idle experiments, by those who are unacquainted with the laws of nature.

It is to correct these errors in agriculture, that science, "the handmaid of the arts," comes to our aid, and by learning and following her laws, we soon come to a more perfect knowledge of the subject, and with the lever which she puts in our hands, overthrow all obstacles. Why is it that the noble art of agriculture, holds so low a rank in the opinion

of men, if it be not that reason has left the field, and given place to empyricism? If it is ever to be restored to its pristine rank, and a new Eden is to bloom, with its fruitful fields, it must be by bringing the GOD-LIKE attribute of man to the task of renovation. I have always been startled with the gratuitous assumption, that knowledge and reason were not to be the rules of agricultural labor. That any one knows enough to be a farmer, and that the *concentrated experience of the world was not to be put in competition with the narrow circle of individual experience!* Is it indeed so with any other science or art? Or should we not conceive it to be arrant folly for any one to pretend to learn any other business, without availing himself of the knowledge of others! I know that intelligent men make no such gratuitous assumptions; but still there may be many, who are not aware of the application of certain sciences which I mention, to the improvement of this most important of arts, or they may have but a partial glimpse into the arcana of science. Others may have formed an opinion, that since science is confessedly imperfect, that it cannot meet the exigencies of the case, but that innovations upon ancient customs are fraught with danger. To such we may reply, that enough is already known to render the art great service, and that knowledge is marching on with such rapid strides, that we should hasten in our movements, lest all hope of overtaking her should be lost.

I knew a gentleman once, who stated that he was waiting for the science of chemistry to come to a stop, before he engaged in the study. It was then comparatively easy to acquire the mass of information requisite for the comprehension of that science. But now look back to the accumulated knowledge on this subject, which has loaded our shelves with ponderous volumes. Is there now any better opportunity of overcoming the difficulty? So it will shortly be with scientific agriculture. But comparatively few are the records now—but with the new impulse it has received, in a few years it will cause "meek-eyed patience to fold her arms in despair," when contemplating the mass of materials that will be collected for our instruction. "Little by little the bird makes its nest;" and so must we gradually collect the materials of knowledge. Let the young farmer, therefore, be on the alert, and not let the rest of the world get the start of him in his art. Agricultural colleges are required throughout our country, and the time is not far distant when we shall see them in full operation. Analytical chemistry and geology will be among the essential principles of a farmer's education. Botanical knowledge will teach the peculiarities of plants, and their adaptation to peculiar soils; and chemistry will teach us so to modify our soils as to produce such results as are required. In the mean time, a few professional men must take the burthen upon their shoulders, and aid the farmer in his first steps in science. Mutual aid and good fellowship, will make the burthen light, and both parties will profit by their association. The farmer, attached to one spot, has great advantages in obtaining facts, which more fully illustrate the knowledge of that particular district. The facts so obtained, are to be collated and duly explained, so as to become capable of forming general rules or principles, for the guidance of others. Soils remarkable for peculiar vegetation, luxuriant or barren, form subjects of particular interest, capable of explanation by chemical analysis.—The present state and future condition of a soil, can in a certain degree be ascertained by a knowledge of their geological origin, and the nature of the chemical reactions which will take place in it. Advantage may sometimes be taken of defects in soils, to render them the most powerfully beneficial. Thus, in the town of Saco, there is an intervale plain, belonging to Mr. I. Jordan, having several remarkable substances in it, which nothing but a knowledge of geology and chemistry could explain or improve. There is a kind of clay marl, filled with minute and almost invisible particles of pyrites or bi-sulphuret of iron, composed of 54 parts sulphur and 46 of iron. The marl also contains three per cent of carbonate of lime, and the remainder is clay.—When this substance is first dug up, it is without any saline taste, and nearly inert; but upon exposure to the air, it crumbles, and after a while, becomes charged with copperas or sulphate of iron, which is formed by the oxidation of the sulphur and the iron, by atmospheric action. While in its first stages, it acts as a powerful fertilizer, for the sulphuric acid is taken from the iron and combines with the lime, forming gypsum or sulphate of lime, while the oxide of iron is deposited. After a while, the copperas or sulphate of iron, constantly forming, gains the ascendency, and then has powerful corrosive properties, nine or ten per cent of sulphuric acid being produced; and having no lime with which to combine, it attacks the roots of the plants and kills them. (See chemical analysis of this copperas marl.) Thus, as Mr. Jordan happily expressed himself, "it first makes the corn grow, and then eats off its roots and kills it." Certain other plants of the *gramineæ*, are capable of withstanding this substance, if not in great excess; and hence herd's grass, rye and wheat, are not so likely to be destroyed by it, since they are armed with a coat of mail composed of silex, which envelops their whole surface; but all herbaceous or tender plants are cut off by it.

Here, then, we have a defect to remedy, and to turn to our account, and it is an extremely simple case, for we have only to add a sufficiency of lime to the copperas marl to render it one of the most valuable and powerful fertilizers. Thus a compost heap affords us an accessible remedy, and the enemy is soon tamed and made subservient to our will. The origin of this pyritiferous clay is at once explained by geology, which teaches us that it is composed of the fine particles of pyritiferous slate rocks, that have been deposited by water. So also the occurrence of nodules of shot and nut iron ore in it, and the mineral waters which flow from the meadows charged with sulphate of lime, explain themselves by the reaction of carbonate of lime upon sulphate of iron, an exchange of elements taking place in accordance with the well known laws of chemical affinity.

Peat also occurs abundantly in the same meadow, and by a little chemical skill may be converted into an excellent manure, by means of a mixture of lime and a little barn-yard manure or any animal matter. Thus three or four cords of the peat mixed with one cord of animal manure, and treated with a cask or two of slaked lime, will make a compost superior in value to five cords of the best stable manure alone. They ought to be placed in alternating layers, thus:

PEAT,
LIME,
ANIMAL MANURE,
PEAT,
&c.

The whole forming a regular compost heap. The chemical reactions which follow are chiefly thus:—

The lime extricates a large quantity of gaseous ammonia from the animal matter, which is absorbed by and enters into combination with the peat, and is thus retained ready for use in the state of ulmate or geate of ammonia—(a most powerful manure)—and the lime becomes completely carbonated or air slaked by the carbonic acid given out during fermentation, and in this state is a proper and permanent ameliorator of the soil. The peat is converted into a powder and soluble pulp, and becomes more suitable for the nutriment of plants. While if lime and animal matter was used in excess we shall have also a considerable quantity of carbonate of ammonia, in the peat, a well known and powerful saline manure.

In case the soil is sandy, the clay marl, neutralized with lime, is the most proper amendment for it, and such is generally the condition of the fields in Saco, so that by a proper use of this marl, the happiest effects may be realized by the farmers in that town.

I could quote other instances of the kind, but the above fully illustrates my meaning, and will show how favorable an influence scientific knowledge would exert in agriculture, were it more generally appreciated.

The principles which I have laid down, have been adopted by several distinguished farmers of Massachusetts, and their experience most fully corroborates the truth of the theory inculcated.

I need but appeal to the experience of one of our most intelligent farmers in Massachusetts, Elias Phinney, Esq. of Lexington, to demonstrate the correctness of the rules we have laid down, with regard to the use of peat for compost manure, or to the beautiful farm of Benjamin Bussey, Esq. of Jamaica Plain, Roxbury, where similar results have been obtained.

"*Lexington, January* 30, 1839.

"DR. CHARLES T. JACKSON—Dear Sir—I herewith send you a sample of my peat. I am very desirous of availing myself of the benefit to be derived from a chemical analysis of the same, which you kindly offered to make. A more intimate knowledge of the nature and properties of peat, which can be obtained only by a scientific examination of its constituent parts, would enable farmers more justly to appreciate this valuable species of land. It is from a want of this knowledge, that our extensive tracts of low meadow and swamp lands have hitherto been esteemed of little or no value.—Allow me to say, sir, that I know of no way, in which you could render a more essential service to the public, more especially to farmers, than by enabling them to convert their unproductive and unsightly bogs and morasses into luxuriant fields and sources of wealth. I consider my peat grounds by far the most valuable part of my farm: more valuable than my wood lots for fuel, and more than double the value of an equal number of acres of my uplands, for the purpose cultivation.

"In addition to these, they furnish an inexhaustible supply of the most essential ingredient for the manure heap. A statement of the uses, to which I have appropriated peat lands, and my management of them, though very imperfect, may serve to give you a partial conception of their value and uses, and at the same time enable you to see how important it is that the farming community should have more information on this subject.

"In the first place they are valuable for fuel. I have for twenty years past resorted to my peat meadows for fuel.—These, with the prunings of my fruit trees, and the brush from my uncleared lands, have given me my whole supply. The prunings and brush are bound in bundles, and housed, and with the help of a small bundle of these faggots and peat, a quick and durable fire is made. It gives a summer-like atmosphere, and lights a room better than a wood fire. The smoke from peat has no irritating effect upon the eyes, and does not in the slightest degree obstruct respiration, like the smoke of wood; and it has none of that drying, unpleasant effect of a coal fire. The ashes of peat are, to be sure, more abundant, but not more troublesome, and are less injurious to the furniture of a room, than the ashes of coal.

"The best peat is found in meadows, which have for many years been destitute of trees and brush, and well drained, and where the surface has become so dry, and the accumulation of decayed vegetable matter so great, that but little grass or herbage of any description is seen upon the surface. If the meadows are suffered to remain in a wet and miry condition, the wild grasses and coarse herbage will continue to grow, and the peat be of a light and chaffy texture, fixed with undecayed fibrous roots. By draining they become hard, and the peat becomes compact and solid, and the cutting out and carrying off greatly facilitated. A rod square, cut two spittings deep, each spitting of the length of eighteen inches, will give three cords when dried. It may be cut from May to September. If the weather in autumn be very dry, the best time for cutting will be from the middle of August to the middle of September. If cut the latter part of summer, or early in autumn, it dries more gradually, and is not so liable to crack and crumble, as when cut early in summer. The pieces are taken out with an instrument made for the purpose, from two to three inches square; and if of good quality, will shrink about one-half in drying. It is considered a day's work for a man, a boy and a horse, to cut out and spread a rod square. The man cuts it out and lays it upon a light kind of drag, made for the purpose, and it is drawn off by the horse, and spread by the boy as thick as the pieces can lay singly. After becoming dry enough to handle without breaking, it is made into piles, cob-house fashion, of from twelve to twenty pieces in a pile. It will then require about four weeks of dry weather to render it fit to be housed for use. The top, or turf, is thrown back into the pits, from which the peat is taken; and if well levelled, and the ground drained, it will, after the first year, give a large crop of foul meadow, or other lowland grass. Peat, taken from land which has been many years drained, when dried, is nearly as heavy as oak wood, and bears about the same price in the market.

"The value of peat and swamp lands for tillage, is now pretty well known, and acknowledged. Some years since, I occasionally sold to my neighbors a few rods of my peat land, yearly, to be cut out for fuel, at three dollars per rod, being at the rate of four hundred and eighty dollars per acre; but finding this sum to be less than its value for cultivation, especially when laid to grass, I have declined making further sales at that price. I have raised upon my reclaimed meadows, seventy-five bushels of corn, five hundred bushels of potatoes, or from four to five tons of the best hay, at a first and second cutting, to the acre, at a less expense of labor and manure, than would be required to produce half this crop upon uplands. To render these lands productive, they should be thoroughly drained, by digging a ditch around the margin of the meadow, so as to cut off the springs, and receive the water, that is continually flowing in from the surrounding uplands. If the meadow be wide, a ditch through the centre may be necessary, but this will be of no use, without the border ditches. This being thoroughly done, and the surplus water all drawn off, the next step is to exterminate the wild grasses, and herbage of every kind, that grow upon the surface. To effect this, the method heretofore generally, and now by some pursued, is to cover with gravel or sand, top dress with manure, sow the grass seed, and then rake or bush it over. This, for the first year or two, will give a good crop of hay; but after this, I have invariably found that the more coarse and hardy kinds of wild grass would work their way through the sand or gravel, and entirely supplant the cultivated grasses—when the whole must have another covering, or be abandoned as worthless. If to be planted with corn, or any of the root crops, my course has been to turn over the turf or sward with a plough having a wrought iron share or coulter, ground to a sharp edge, in the driest season, say in the month of September, roll down as hard as possible, carry on in the winter a sufficient top dressing of compost, twenty cart loads to the acre, and in the spring plant with corn, or roots, without disturbing the sod. When the corn or roots are taken off, the surface is made smooth with the cultivator, or hoe and harrow, and late in November, or just before the heavy frosts set in, sow with herd's grass and red top seed, half a bushel of the former and one bushel of the latter to the acre. The field is then rolled, which completes the process. If the plough does not turn the sods smooth, it will be necessary to follow it with a bog hoe, to level the uneven places. By keeping the sod undisturbed in the cultivation, a more firm and compact surface is formed, upon which oxen or horses may work generally, without danger of miring. If the land is intended for grass, without the intervention of a hoed crop, the turf is turned over with the plough, as before stated, in August or September, or as early as the surface becomes dry enough to admit the oxen or horses upon it; then follow with the bog-hoe and turn over such parts as the plough has left unturned, make the whole smooth with the hoe, and late in November, spread on a top dressing of compost, not less than twenty cart loads, made half of loam, and half of stable manure, to the acre; then sow the grass seed, and bush, and roll down. If the ground be miry, so as to render the use of the plough impracticable, the bog hoe must be resorted to, and the whole turned over by hand, and top dressed, and seeded to grass, as above stated. The cost of turning over with the hoe, will be twenty dollars per acre, at the usual price of labor. This mode of culture completely subdues the natural wild grasses, and gives a compact and rich surface of vegetable mould, which will give an abundant crop of the best English hay for four or five years, without the aid of more manure. If the sod is disturbed and attempted to be pulverized in the course of the cultivation, the surface, when laid to grass, will be loose and spongy—an extra top dressing of loam and manure will be required, and after all, the surface will not become so compact, nor the produce by any means so great. Should meadows be found too soft and miry to admit of their being ploughed in the summer, or autumn, and the expense of turning with the hoe should be thought to be too great, I would advise ploughing in the spring, when the frost is out to the depth of three or four inches, carting on the manure, and then sowing or planting at a convenient and proper season. The art of reclaiming these low meadows, consists in taking off all the surplus water by judicious draining, and in thoroughly exterminating the natural herbage and grasses. This being effected, we have our rich bottoms, equally as productive as the deep alluvials of the west, and obtained at a cost and sacrifice infinitely less.

"The third particular in which peat lands may be considered valuable to the farmer, consists in furnishing him with a very important ingredient for his compost. Peat is made up principally of decomposed vegetable substances, with a portion of the lighter particles of vegetable mould, washed in from the surrounding highlands. But when taken fresh from the pit, it contains certain antiseptic properties, injurious to vegetation, which must be absorbed, or neutralized, by a combination with other substances, in order to render it food for plants. This may in some measure be effected by exposure to the action of the air and frost. Where the surrounding uplands are composed of gravel or sand, the peat or swamp mud may be called silicious, and is less valuable for manure, especially if the adjacent uplands rise abruptly—when composed principally of clay, the peat is aluminous—this is frequently found resting on beds of marl, and is considered much richer, and more valuable for the compost heap.

"I have annually, for some years past, used on my farm some hundreds of loads of peat mud, which is either thrown into my hog-stye, or mixed with fresh stable dung, or with lime. When mixed with green stable manure, the proportions are two parts of peat mud to one of dung; and I am confident, from repeated experiments, that a load of this compost, well mixed and fermented, will give as great a produce, and a more permanent improvement to the soil, than the same quantity of stable manure. In this opinion, I am not alone. Other accurate and intelligent cultivators, have made similar experiments with similar results.

"The vegetable substances of which peat is composed, having been decomposed in stagnant waters, they have not passed through a putrefactive fermentation, and are therefore supposed to contain much of their natural oils, gums and acids. Peats, in this region, are also supposed to contain portions of sulphate of iron, or copperas, oxide of iron, &c. This opinion is formed from noticing the difference between the

effect produced by using the peat mud on grounds, when first taken out of the meadow, and that which is produced after fermentation, with stable manure, or by mixing it with lime. The ashes of peat have little or no perceptible effects, when used alone, but by mixing them with lime, they become a valuable manure.

"That our peat may possess other and different properties, which are in a greater or less degree injurious to plants, is highly probable. These can be detected and remedied only by the aid of science. It is to the agricultural chemist, that the practical farmer must look for a development of his resources, to remove the obstacles which impede his progress, and to impart that information which will give confidence to action, and a successful issue to labor.

"With an earnest desire that you may persevere in your useful labors, I am, dear sir, with the highest respect, your obedient servant, E. PHINNEY."

*(To be continued.)*

## Annual Address.

*Before the Kentucky State Agricultural Society—delivered at the Capitol in Frankfort, January 14, 1839, on the dignity of the profession of agriculture, and the propriety of legislation for its improvement.*

BY COL. C. S. TODD, OF SHELBY.

*Gentlemen of the State Agricultural Society*—In compliance with the invitation of our worthy President, I appear before you this evening, in behalf of the great interest which sustains every other interest in the community; and relying upon your indulgent feelings towards a cultivator of the soil, entreat you to forget, in the magnitude of the subject, any deficiencies of the advocate.

In entering upon the duty assigned to me, I feel a consciousness of the difficulties which beset my path, arising as well from my own inadequacy to the task, as from the nature of the subject, which is generally considered not to be susceptible of those illustrations and attractions, rendered so interesting in this age of improvement, by the exertions of cultivated intellect applied to the departments of law, physic, moral and political economy. All that I can hope then to effect, will be to lead abler minds to reap laurels in a field in which, as a pioneer, I shall be content if the public mind be directed to the subject.

As the advancement of the cause of agriculture is the exclusive object contemplated in the formation of this society and of the annual meeting on this day, I propose upon this occasion, to examine this subject in two of its most interesting aspects—first, to present to my brother farmers some of the considerations which should lead them to form and act upon a more exalted estimate of the dignity of their profession; and then, to offer some suggestions, which, it is hoped, may have a tendency to stimulate the legislative councils to that encouragement of the cultivation of the soil, which an enlightened forecast deems to be so intimately connected with the public welfare.

In the first place, as to the dignity which belongs to the pursuits of agriculture. The illustrious Franklin, whose eulogy was conveyed in such felicitous language by the eloquent Mirabeau—"*Eripuit cælo fulmen sceptrumque tyrannis;*" the sage, whose fame shed lustre on the age in which he lived, and who sustained towards his country the envied attitude of mechanic, patriot, statesman and philosopher, has pronounced "agriculture to be the most honorable of all employments, being the most independent. The farmer," says he, "has no need of popular favor, nor of the favor of the great; the success of his crops depending only on the blessing of God upon his honest industry." The occupation of the farmer is not only honorable, as being the first pursuit of man, and as having engaged the attention of the most virtuous and illustrious men in every age, but it is the most honorable for the precise reason stated by Franklin—it is the most independent. The other pursuits of men, in all their diversified forms, depend in a greater or less degree upon the success of those who exert their energies in other avocations—the merchant depends upon the farmer and manufacturer—the mechanic upon the farmer and merchant, and the professional man upon all of them; but Franklin, as well as the experience of ages proclaims, that the farmer is independent of all save "the blessings of God upon his honest industry."

Washington, the father of his country, has declared that "he knew of no pursuit in which more real and important services can be rendered to any country than by improving its agriculture." Socrates, one of the most eminent of the ancient philosophers, says, "agriculture seems to possess an incontestible right to the title of parent and nurse of all other professions;" and the celebrated Vattel, of modern times, whose treatise on the Law of Nations is regarded as the standard of international duty amongst the most enlightened states of the present day, says, "of all the arts, tillage or agriculture is doubtless the most useful and necessary; it is the nursing father of a state; the cultivation of the earth causes it to produce an infinite increase; it forms the surest resource and the most solid fund of rich commerce for the people who enjoy a happy climate."

Agriculture was the first avocation of man, Adam being directed to "dress and keep" the garden of Eden. This was his duty in the days of primeval innocence; and after the fall, he was required to earn his bread by the "sweat of his brow." The first valuable improvements in husbandry were made by Noah, who, though a preacher of righteousness, was called a man of the ground, because of his advancement in agriculture and his invention for subduing and fertilizing the soil. The divine command to the Jews, "break up your fallow ground and sow not among thorns," is applicable to all the nations who live by the cultivation of the soil; and I indulge the hope that there is not a christian farmer in our land, who, while he recognizes the spiritual beauty of the passage which has immediate reference to the cultivation of the heart, does not feel its literal force in calling upon him to adopt all practicable means of improving the soil committed to his care. And here it may not be impertinent to remark, that if the mass of my brother farmers would "indeed break up their fallow ground and sow not among thorns," as well in relation to their husbandry as to the cultivation of their minds, we should not be placed, as a profession, in the rear of other less worthy pursuits.

The descendants of Abraham in Palestine, the Chaldeans, the Egyptians, the ancient Persians, the Phœnicians, the Athenians, and the Romans, including those in the highest offices in each of those nations, manifested the highest regard to the pursuits of agriculture. Hesiod and Xenophon of the Greeks, and Cato, Varro, Virgil, Pliny and Columella, of the Romans, published treatises on the subject—and the greatest improvement was made in agriculture during those periods of the ancient nations, when their institutions approached more nearly to the republican character. Xenophon, one of their historians, remarked that "agriculture is the nursing mother of the arts, for, where it succeeds prosperously, there the arts thrive; but where the earth necessarily lies uncultivated, there the arts are extinct." In the best days of the Roman republic, he was entitled to the highest praise who "best cultivated his spot of ground," and such should be now the tone of public sentiment. Montesquieu has observed that "countries are not cultivated in proportion to their fertility, but to their liberty;" and the conductor of the New-York "Cultivator," who unites in himself, more eminently than any other citizen of the republic, the rare qualities of scientific knowledge and practical experience with a polished pen, lays it down as almost a maxim, that "the mental and moral condition of an agricultural district is in the ratio of its improvement in husbandry."

There is a moral beauty in the sentiment of Franklin, which maintains that the farmer is independent of all, save "the blessing of God upon his honest industry." Those who plough the land, as well as those who plough the sea, are under peculiar obligations to recognize a special and superintending Providence. The farmer has the promise of seed time and harvest; the seasons, the rain, the warmth of the sun, the growth of the soil, and all the operations of nature, admonish him, of the exertions of an Omnipotent energy. In the country he seems to stand in the midst of the grand theatre of God's power, and seeing that the succession of heat and moisture constitutes the sources of production, he is led to feel in the action of the sun and the descent of dew and rain, his obligations to reverence that unsearchable sovereign without whose permission not a "sparrow falls to the ground," nor a blade of grass springs up. The sailor, too, looks through the elements to the great first cause, and the man at sea must be insensible to all the high and holy motives of gratitude, who does not feel his own impotency, not less than a reverential awe of that Supreme Power whom the winds and waves obey.

Ancient and modern poets have dignified the cultivation of the soil by the majesty and melody of their immortal songs. Virgil, the great Roman, has left an imperishable monument of his devotion to the cause of agriculture; and strange as it may seem to some of our modern farmers, some of whom affect not to need any instruction in the science upon whose successful application they depend for support, Virgil gives in his Georgics much of what constitutes the present mode of ameliorating the soil. An interesting extract which may be found in book I, line 79-80, speaks of the Roman practice of saturating the parched soil with rich animal manure, of scattering sordid ashes upon the exhausted lands, and of giving rest to their fields by a rotation of crops; to which if we add the later process of renovating through the introduction of the grasses and the application of marl, we shall have the present improved mode of farming as practised in our own country. Milton, the Homer of modern times, (both of them blind to natural, though touchingly alive to moral beauty) occupied his master mind in delineating the paradise which Adam was directed to "dress and keep;" and Thompson has presented aftertimes with a surpassingly beautiful scene in his autumn, where he introduces among the gleaners of the harvest,

> "The lovely young Lavinia, who once had friends,
> And fortune smiled deceitful on her birth."

A sentiment as descriptive of the benevolence which belonged to the period of harvest as it is illustrative of the career of thousands upon whom the sunshine of prosperity in early life has only dawned to render the gloom of adversity more conspicuous in their declining days.

Ancient and modern patriots have been devoted to the cultivation of the soil. Cincinnatus, Dentatus, and Regulus, La Fayette, Washington, and our own Shelby, are illustrious examples of this interesting fact. They repaired from the plough to the defence of their country, and from the defence of their country returned to the plough; and although they were renowned warriors, we must suppose there was a redeeming spirit in the nature of their avocations as cultivators of the soil, which caused their love of country to be superior to all selfish considerations. Considered in this aspect, their fame will live undimmed in the records of time, whilst the memory of the Cæsars and Alexanders, the Bonapartes and Iturbides will rot, like the "memory of the wicked." Of Cæsar, nothing is left but his accomplished commentaries and his unhallowed ambition. Of Alexander, who shed tears because he had no more worlds to conquer, no monument remains but the city of Alexandria in Egypt, once the pride of the world in its unrivalled library, and when it commanded the commerce of the Mediterranean sea and the Arabian gulf, but now only a scene of magnificent ruin, since the discovery in the 13th century, of a new route to the East Indies by the Cape of Good Hope. In a few years posterity will only speak with approbation of Bonaparte as having left a valuable code of laws for France, and as having established agricultural societies and professorships, and the National garden; whilst the frequent and inexplicable revolutions in former Spanish America will only serve to proclaim the succession of military tyrants, countenanced alone in countries where the system of religion prescribes the rights of conscience as well as the lights of knowledge.

The most distinguished individuals in our country, including nearly all of our Presidents, have delighted in the pursuits of agriculture. Washington, whose career presents the brightest example of true glory recorded in ancient or modern history, was impatient to retreat from the toils of war and the cares of state, to betake himself to the pure and unalloyed joys of rural life. Jefferson, whose fame is identified with the independence of his country, rejoiced in the opportunity of mingling the avocations of the farm with the sweets of polite literature. Madison, whose monument is found in the matchless constitution he contributed to form and which he administered in peace and in war, was always anxious to retire to the mellow pursuits of agriculture, as the most congenial in their influence upon the profound and classic efforts of his unrivalled pen. Monroe, who fought in both wars for the maintenance of his country's independence, and whose career is signalized by association with the purchase of Louisiana and Florida; the heroic Jackson, whose fame will live as long as the waters of the father of rivers roll on to the ocean; our own eloquent Clay, the great unsurpassed of modern statesmen, and our own veteran Harrison, whose patriotic policy founded and whose skilful valor defended the vast North-West—these all have manifested a deep solicitude for the interest of the great cause which we have this day convened to promote.

To descend to our own history as the first republic in the wilderness of the great west, we have many noble examples of our most distinguished citizens devoting themselves to the pursuits of agriculture. At an early period, Shelby, Nicholas and Breckenridge were conspicuous in their efforts to advance this great object. The first, renowned in the war of the revolution, and in the early as well as the after history of the state; the two latter, his equals in vigorous intellect and patriotic devotion, whilst they were scarcely excelled in the whole Union in their enlightened advocacy of the principles of constitutional law. In our own day we find the whole community in its civil, political and religious character, coming up to mingle its tears with ours over the graves of the lamented Garrard and Green, who, after signalizing their valor in the North-West, considered it their proudest claim to distinction in devoting their strong minds and patriotic hearts to the great cause of agriculture. And passing from our own country and our own age, we may refer to the fact which is exhibited in bold relief in the history of every nation claiming to be civilized, that men of every profession, in all ages, have contemplated at some period of their career, to retire to the repose to be found only in the pleasures of rural life. The statesman, the civilian, the philosopher, the physician, the merchant, the handicraft tradesman, the county court pettifogger, the village constable and the heartless usurer, all fix in their minds some future day in which they hope to realize what their imaginations have depicted of the joys of retirement in the country.

As a further illustration of the value which highly gifted men have attached to the pursuits of agriculture, I venture to introduce an extract from the essays of Dr. Johnson, who stands at the head of British literature. It is allowed that "vocations and employments of vast dignity are of the most apparent use; that the meanest artisan or manufacturer contributes more to the accommodation of life, than the profound scholar and argumentative theorist: and that the public would suffer less present inconvenience from the banishment of philosophers than from the extinction of any common trade."

"Some have been so forcibly struck with this observation that they have, in the first warmth of their discovery, thought it reasonable to alter the common distribution of dignity, and venture to condemn mankind of universal ingratitude; and what labor can be more useful than that which procures to families and communities those necessaries which supply the wants of nature, or those conveniences by which ease, security and elegance are conferred."

"This is one of the innumerable theories which the first attempt to reduce them into practice certainly destroys. If we estimate dignity by immediate usefulness, agriculture is undoubtedly the first and noblest science; yet we see the plough driven, the clod broken, the manure spread, the seeds scattered and the harvest reaped, by men, whom those that feed upon their industry, will never be persuaded to admit into the same rank with heroes or sages; and who, after all their confessions which truth may extort in favor of their occupation, must be content to fill up the lowest class in the commonwealth, to form the base of the pyramid of subordination and lie buried in obscurity themselves, while they support all that is splendid, conspicuous or exalted."

Peerless woman, in all her high and holy influences, has contributed to give dignity to the pursuits of agriculture.—Throughout the succession of time in all civilized nations, she has been man's solace in every condition of life, and to no class of men more eminently than to the cultivators of the soil. It is in the domestic circle of the farmer, that woman shines in all her glory, guiding the distaff, or leading lisping infancy in prayer. But it is not to the farmer alone, that she is the richest of all temporal blessings—her hand is ever open as day to melting charity—her approbation gives rapture to the statesman and the philosopher—her love animates the warrior on the field of battle—her heart is often an altar dedicated to the service of the living God, and her bosom is as the balm of Gilead to the wounded spirit in the hour of trouble.

But if the testimony of men of science and of patriots in all ages fails to recommends the pursuits of agriculture to our favorable consideration, there is intrinsic merit in the profession itself to command our unqualified regard. It is the nursery of patriotism, of wealth and of strength to the state. All writers on political economy speak of the farmer as the "productive class," and all others as the "unproductive classes," and whilst he is creating materials, nearly all other occupations are employed on pre-existing materials. If these views of the general value of the agricultural interest be acknowledged, how much more impressive will they be regarded in reference to our own state, where the products of the soil enter so pre-eminently into the sources of her prosperity. We are in a latitude so peculiarly blessed as to unite the growths which belong to a northern and a southern climate. The tobacco of the south is found by the side of the hemp of the north, and the grass of the north grows luxuriantly by the side of the corn which flourished best in the south. This happy concurrence of climate meets upon a soil of unparalleled fertility and of irrepressible energy; presenting just the undulations in surface which protects it alike from baking or of washing in the cultivation. The corn and grass of this rich region contribute, in the character of provisions and live stock, mainly to the supply of the cotton planter of the south, who, in his turn, supplies the raw material to the manufacturer of the north, who, in his turn, with the merchant and the seaman taking it to market, is fed chiefly by the products of our soil; so that in the circuitous operations of labor and of commerce, Kentucky with the other states of the west, feeds all the operatives of the north and of the south. How dignified, then, should be the pursuit, and how controlling the interest which effects these high objects. But with a soil and climate so inviting, we do not realize from our lands half the product which is found in the northern states, where the cold soil and rock surface is made to yield to the influence of scientific labor; and

without a prospect of improvement in the character of our husbandry, we are in danger of being exposed to the remarks of Solomon, in regard to the slovenly farmer. "I went by the field of the slothful, and lo it was all grown over with thorns, and nettles covered the face thereof, and the stone wall was broken down." May we not, however, hope that a better day is dawning upon us in all that relates to the means by which the physical as well as intellectual resources of our country may be developed, and that in view of all the considerations which have been addressed to the pride of the farmer, he may be led to aim at a standard better calculated to elevate him in public regard?

In contemplating the causes which in our own country have led to the low estimate heretofore placed upon the pursuits of agriculture, we cannot fail to ascribe the principal agency to the disrepute in which manual labor is held by those who have been educated for the so called learned professions. Even the merchant considers himself as occupying a higher grade in society, although he is but the *teamster* who is employed in transporting and exchanging the surplus products of the farmer, who creates the raw material, and in bartering the articles of the mechanic and manufacturer who exerts his labor in preparing the raw material for the market. The standard of the farming character suffers injury from the common opinion which attaches to his profession, the want of any intellectual culture or any refinement in manners; and although we may deplore and condemn this unworthy prejudice towards the employment which is intrinsically the most respectable, we have reason to confess that too large a portion of those engaged in the cultivation of the soil seem by their conduct to attach little importance to these requisites of character. If as a profession we do not occupy in the community, the attitude of intelligent farmers and accomplished citizens, we have to ascribe the result, in a great degree, to our neglect of the means which would elevate us in society. We have, heretofore, discarded all connexion between science and art as applied to agriculture, and by the neglect of general education, have allowed other professions to assume and to occupy the position to which we are entitled. We have disregarded even the proper measures for training our sons to the exercise of their most exalted privileges as citizens; and to the apathy and ignorance of farmers, in reference to the fundamental principles of public policy, we may trace most of the political disorders in the state. It is often said when a young man is supposed to be too dull for what are called the learned professions, that he is *then fit for the plough*. Be it our high aim to establish the converse of this proposition; and were the standard of intelligence among farmers as elevated as their employment is honorable, the day may not be distant when the youth who should be found to want the intelligence and energy necessary to make him a successful farmer, will then be pronounced fit only for seeking his fortunes in some one of the "unproductive"—less dignified—learned professions. With this high object constantly in view, and by the adoption of the means which will be adverted to in the further discussion of the subject, the cultivator of the soil may hope to resume the proud attitude which the nature of his profession as well as the approbation of ages has assigned to him.

In attempting to examine the subject with a view to legislative encouragement, I find myself surrounded by a multitude of imposing facts in our own history and in that of other nations in relation to this great interest, all calculated to deepen conviction as to the necessity of arousing the apathy of farmers, of vindicating the dignity of their profession, and of guiding public sentiment to an appreciation of the fundamental cause of national prosperity.—*(To be continued.)*

## Circular on Common School Education.

*To his Excellency the Governor of and the members of the Legislature of that State.*

FELLOW CITIZENS—"At the ninth annual meeting of the American Lyceum, held in the city of New-York, on the 3d, 4th and 6th of May 1839, the following resolutions, proposed by Professor Brooks of Massachusetts, were maturely considered and unanimously adopted: viz.

"*Resolved*, That it is expedient to hold a National Convention for one week in the "Hall of Independence" at Philadelphia, beginning on the 22d of November next at 10 o'clock A. M. for the purpose of discussing the various topics connected with elementary education in the United States.

"*Resolved*, That a committee of five be appointed to request the Governor (and, if in session, the Legislature) of each state in the Union to invite the friends of education in their state to attend the convention." (*Copy of records.*

The undersigned, having been appointed to form the committee, do now in obedience to their instructions respectfully address you on this paramount subject.

The American Lyceum, in taking measures to carry into effect the above resolutions, expresses its deep anxiety for the proper physical, intellectual and moral culture of every child in the United States. It is ascertained that as many as nineteen out of twenty children, who receive instruction, receive it in the common schools. These schools therefore must be with us the hope of civilization, liberty and virtue. To elevate them so as to meet the wants of our republic is the high and single aim of the convention. Parties in politics and sects in religion will not for a moment be recognized in any form. No power will be vested in the Assembly. It will be, we trust, a company of philanthropists, patriots and christians, coming together in the spirit of an expansive benevolence, to consult for the highest good of the rising generation; and whose deliberations and results, when published to the country, will bring the great cause of education simultaneously before the several states in a form for enlightened, definite and successful action. As subservient to this humane and patriotic object, we would suggest a few among the many topics which will demand the consideration of the meeting; viz:

How many children are there in each state, who, according to the laws of that state, should be under instruction?—How many of this number are found in the schools? What is the condition of the common schools in each state? What is the organization of the school system? What branches of knowledge should be taught in our common schools? What should be the character of our common school books? How may school apparatus and school libraries be made most useful? In what branches should instruction be given orally, and in what degree? What should be the qualifications of teachers? Are normal schools (or seminaries for the preparation of teachers) desirable? On what plan should they be established? Is a central normal school for the Union desirable? Should it be under the direction of Congress or a society of citizens? What connection should the common schools have with academies, colleges and universities? What models for school-houses are best? Will a "Board of Education," established by each state, afford the best supervision and secure the highest improvement of the schools? How can itinerant teachers and lecturers best supply destitute places? Is a national system of instruction desirable? How should a school-fund be applied? In what part of each state has the greatest progress been made in elementary education? How may school statistics, which must be the basis of legislation, be most easily collected? What features of the systems now in operation in Holland, Germany, Prussia, France and Great Britain, may be most usefully adopted in this country?

Fellow Citizens—The discussion of these and kindred topics will probably elicit a mass of information the importance of which cannot be easily overstated. We would therefore urge those, who shall attend the convention, to come prepared for making known the valuable facts they can gather.—Believing that all the talent of a country should be so tempted forth, by judicious culture, as to bring it into profitable and harmonious action; that it is important to the public good as well as to private happiness that we should receive the requisite supply of useful information; and that each faculty which the Creator has implanted in childhood should be developed in its natural order, proper time and due proportion, we invite you to secure the attendance of delegates from your state prepared to promote this first duty of our republic —*the education of our youth.* Believing that our country must look to intelligence as its defence, and to virtue as its life-blood; and that the plan now proposed, originating in the most enlightened views of freedom and humanity, will be the first in a series of means for securing the greatest good to future generations, not only among us, but to our sister republics, the Lyceum desires to bring into a focus all the light which can be collected in our land. Some of the most distinguished gentlemen in several states have promised to be present; and we would suggest the expediency of inviting the members of Congress (who will be on their way to Washington about the time of the meeting) to join the convention.

With the most heartfelt good wishes for the success of every effort for the benefit of the young, both in your state and throughout the Union, we are your friends and fellow citizens,

THEODORE FRELINGHUYSEN, of New-Jersey.
CHARLES BROOKS, of Massachusetts.
JOHN GRISCOM, of Pennsylvania.
HENRY R. SCHOOLCRAFT, of Michigan.
THEODORE DWIGHT JUN. of New-York.

*New-York, June* 1839.

P. S. We respectfully invite each editor of a newspaper in the United States to give his patrons the opportunity of reading the above circular; and to add this postcript as recording our sincerest thanks for his friendly co-operation.

## On the use of Lime.

*Bloomsbury Plains, Somerset Co. July 16th*, 1839.

DEAR SIR—According to your request I will give you my experience on the use of lime. I will first describe the soil of my farm, which is a mixture of clay and a fine calcareous looking sand, with a yellow clay bottom. In 1837 I purchased 200 bushels of slaked stone lime, at 12 cts. per bushel; as it was the first I ever used I was determined to give it a fair trial, and to ascertain its true value. I walked out to my field and laid off one acre of poor worn out land, which did not produce more than 1¼ barrels* of corn to the acre, and a large part of that hardly saleable. In October I put on 50 bushels of stone lime to the acre, with a tolerable covering of coarse grass, and ploughed it under and let it lie until the next April; then cross-ploughed and planted it in corn: the ground appeared very mellow, and I could see a considerable difference in the color. At the period of harvesting my corn I was anxious to know the result—I gathered the corn and measured it up; the result was 4 barrels of corn to the acre, or 20 bushels of sound corn, weighing 59¼ pounds per bushel. I then set down to make a calculation to see what profit I derived from my lime. It is as follows:

| | | |
|---|---|---|
| 20 bushels corn at 75 cts. | | $15 00 |
| Fodder worth | | 3 00 |
| | | $18 00 |
| Cost of 50 bushels lime, at 12 cts. | $6 00 | |
| Hauling | 1 00 | |
| | | 7 00 |
| | | $11 00 |
| What it produced before liming:—7¼ bushels corn at 75 cts.—fodder $1.50, | | 7 12½ |
| Clear profit, | | $3 87½ |

And *leaving my land worth three times as much as it was before the application of lime.* Well, I had 150 bushels left—I put it into a compost with barn-yard manure, such as pine tops and straw litter from cattle—In the spring manured with my compost in the hill, which acted admirably, equal to stable manure. I have tried the lime on almost a bald surface, and I could perceive scarcely any benefit. I think it will not act well without some vegetable matter. My opinion is, that it acts as a stimulus, and rectifies the unproductive properties of the soil. I tried oyster shell lime—I took a piece of ground I thought would produce about 2½ barrels, and applied 100 bushels oyster shell lime with some coarse manure. I did not measure the corn, as I was hurried, but thought it would gather 70 bushels per acre. I will leave you to describe the present crop, as you were an eye-witness to it. Yours respectfully, MATTHIAS B. TOADVINE.

* Seven and a half bushels.

## Facts for Farmers.

[*From the Boston Cultivator.*]

It is a fact that some cows will make three times as much butter as others of the same size and with the same keeping.

It is a fact that some breeds of swine will make a ton of pork out of half the keeping which is required for other breeds.

It is a fact that some ploughs require twice as much team as others and yet do not perform the work so well. It is a fact that some farms of fifty acres produce more than some other farms of one hundred acres.

Is it not worth our while to make inquiry into the causes of these differences and to devise a mode of equalization; And first, as to our breeds of cattle. We will make no over statements. We know there is abundance of testimony that we have native cows which will make more than fourteen pounds of butter per week each, and we all know we have a great number of cows that will not make five pounds each. With these facts staring us in the face shall we not cast out those that will not pay the expense of keeping and introduce better breeds?

We would not be understood as making comparison with any foreign breeds of cattle. Those who prefer them may make the trial, and may improve by crossings; but we would improve our native breeds and select the very best. There can be no doubt of the practicability of producing a herd from our native stock that shall in a very few generations be sure to prove of the true blood of the ancestors. We have yet made no trial in this country, but knowing what has been done elsewhere, we can now proceed with confidence, having our path lighted by lamps that have gone before.

The course of commerce between Massachusetts and the interior has for many years been unfavorable to the improvement of our neat stock and of our swine. In the vicinity of our cities we have found it more profitable to slay all and eat all our young neats, at an early age, than to rear them; while in the interior, where keeping was cheap and there was no market for veal, the whole progeny of the neat cattle has been reared without the least regard to symmetry of form or promise of exellence. All must perceive that by proceeding in this manner we can make no improvement in our stock.

But a better era begins to dawn upon us; for since it is found that the most excellent of our own cows will command a price bearing some proportion to the good qualities of the animal, the best will be snatched from the butcher and reared; and inferior animals from the interior will bring only such prices as may justify their purchase for beef. The whole tendency of the operation will be in favor of selections, both here and in the interior, of the best animals for rearing.

But we hope and trust we shall not be content with this slow mode of approximating to a perfect breed of neat stock. Since farmers are becoming convinced of the superiority of the best of our native stock over the poorest, they will lend their aid to those who shall begin in earnest to rear only from the best animals.

We are fully satisfied that no branch of farming could be pursued to greater profit, even within a few miles of Boston, than that of rearing the best of neat stock that can be selected from our native breeds, and we are pleased that one gentleman at least in the neighborhood of Boston is determined to prove what may be done by crosses of our very best native cows with an English bull of the Ayreshire breed which is of fine form and was not selected for his great size but for his good qualities.

We sincerely hope others will be induced to imitate his example, so far at least as a selection of our best native stock is concerned—and that not only the females but the best males will be selected and kept from other herds until we can be supplied with an improved breed that shall rival the best that has ever been reared.

By breeding from the very best males and females only, we may be quite certain in a short time to raise up a perfect stock. We well know "a good cow may have a bad calf," but ten good cows with a male of the right breed will have eight or nine good calves, and the descendents of these will be more likely to be of the true breed, and so on; the farther we progress the more sure we may be of a correct result.

And what an acquisition to the farmer and to the community to possess herds that will give us thrice the milk which our present stock supplies.

The average expense of keeping a cow on hay and grass in the vicinity of Boston for a number of years past may be stated at not less than thirty dollars each. The average value of her milk made into butter may be 140 weight, or seven pounds per week for twenty weeks,—or at nine quarts per day, 9 times 140 equals 1260 quarts, and this at four cents per quart equals $50.40. Thus the butter to equal the milk should bring thirty-six cents per pound.

We have yet counted but twenty weeks milking, but with good keeping cows should be milked not less than forty weeks, and if turnips and grain are fed out the last twenty weeks will give half as much as the first twenty. The produce in milk might then be worth $75.00—in butter, at the common market price, it would be one third-less, though the nicest premium butter has often brought more than this milk would amount to.

We think it quite feasible to rear cows that will give double this quantity of milk or butter, and how valuable must be such stock?

## Beet Sugar.

[*From the New-England Farmer.*]

We perceive by a recent number, that our neighbor the publisher of the Yankee Farmer, proposes forming an association for the purpose of ascertaining the practicability and advantages, if any, of the manufacture of sugar from beets in this country, by the latest and most improved methods.—Especially, he is desirous of determining whether it can be so managed, as has been represented, that every farmer's family in the country may by a simple household practice, supply their own wants. We most heartily wish him all possible success. How far the calculations which he has given to the public in relation to this matter, are to be relied on, we are not able to say. But the funds asked for are a small affair compared with the importance of the object in view; and, divided as they will be, cannot fall heavily, even if the project should fail. But success is highly probable.

The sugar beet is beginning to be much cultivated in various parts of the state. We have seen considerable fields of it in many places: and trials of it as feed for cattle and swine have served to bring it into favor. A company is prosecuting the cultivation of it, as we have been informed, to a large extent in Michigan, with a view to the manufacture of sugar.

One spirited individual has informed us that he has one hundred acres in that state devoted to sugar beet. The present year, therefore, will probably decide what can be done.

There are facts in regard to it, now existing in France, which we find it difficult to reconcile to statements which are constantly made in respect to the manufacture in that country. The first is, why if the cultivation and manufacture are as profitable in that country as is represented, they require so heavy a duty upon colonial sugar in order to protect the manufacture of beet sugar. The second is, why if the new methods recently discovered are successful, and by them the sugar can be produced at a low rate, they are not at once adopted, and the government protection rendered unnecessary. An intelligent gentleman, sent out by the Northampton Beet Sugar Company, for the express purpose of obtaining all necessary information in relation to the matter, informed us that Shutzenbach's method upon trial in France was not approved. Fleischman in his interesting report to Congress on this subject, states the discovery of a method of extracting the sugar from the beet, by which a considerably larger amount of sugar was obtained than by Shutzenbach's method, at a less expense, and in a way which would place the manufacture within the reach of every farmer's family in the country. It is now full time that we should have received the results of experiments made by this method. Probably they have been made and others are in possession of the results. We have not been so fortunate. Shutzenbach's method, as we have been informed by persons who were not proprietors in the concern, has been tried at Northampton with success. We have seen a sample of the sugar made there, which promises well; but can give no particulars.—More than a year since, we mentioned the discovery of a method of extracting and manufacturing the sugar, by a gentleman at Stoneham, in the vicinity of Boston, which promised the advantages of general practicableness, small expense and a large per centage of sugar from the amount of product. We saw the sliced and dried beets; the mode of obtaining the syrup; the chrystallization of the syrup, and the sugar perfected, but not refined—certainly a beautiful article. For the amount which could be obtained from the beet by this process, and which was represented to be from eight to ten per cent, and for the expense required in the extraction and manufacture, we relied upon the testimony of the operator, whose integrity is beyond a question. We deemed it a most important discovery, and after a patent for the manufacture had been obtained, we had great pleasure in announcing it. We thought the vessel had not only entered the harbor but actually reached the wharf; and were quite disposed to throw up our hat with the farmers and give three cheers. But it seems to have been a phantom ship or a sort of "flying Dutchman," for we have not been able to obtain a word further on the subject.

The matter deserves all the attention which any among us seem disposed to give to it; and we wish our neighbor all the beet sugar he can need in his tea and coffee the rest of his life, sweet creature as he must become, if his useful project should prove successful. H. C.

## Red Giant Goliah Rhubarb.*

In the market gardens around London, a large species of rhubarb is extensively cultivated, with which the various excellent markets of the metropolis are well supplied; but beyond the range of a few miles, the particular kind to which we would direct the attention of our farming friends, is comparatively little known—the generality of country gardens being disgraced with a root or two of dock-like plants, with stalks no thicker than a finger, fibres like a whip-cord, and a flavor!—Uh! No wonder so few persons, *thus possessed*, should like rhubarb tarts! No wonder they disguise the taste with shrivelled apples just going out of season, or gooseberries just coming in! The noble plant which we would recommend to every living being who owns a patch of garden ground, is as superior to the old fashioned nauseous plant just mentioned, as our cultivated celery is superior to the rank wild weed of the same name growing by muddy ditches. One would be led to suppose, that, from the rarity of the giant rhubarb, it was difficult of cultivation, tender and troublesome to manage; whereas it is as easily propagated as any other perennial vegetable; is so hardy that no degree of frost which we have ever experienced, will injure it; and of all esculents for pies and puddings, it is the most readily prepared. It is so prolific that half a dozen roots would keep a small family constantly supplied, during four months of the year; that is, from the beginning or middle of April, (according to the forwardness or backwardness of the season,) until the beginning or middle of August. We have known instances of this, *fruit* must we style it? being preferred to all others for the purpose of pastry, throughout the summer, even where fruits of every kind abound. We have known stalks of the Red Goliah Rhubarb to measure six inches in circumference and nearly two feet in length, so that only one of them has been required for a pudding: so delicate and soft, too, is its texture, that as soon as it arrives at the boiling point, it becomes a fine pulp, and is already sufficiently cooked. As a garden production for culinary purposes, it is certainly invaluable—being in perfection precisely at that season when apples become tough and scarce, and before gooseberries have made their appearance. Its flavor is so delicate, that it ought not to be mixed with any other ingredient than sugar; and on no account should it ever be peeled.

The Red Goliah Rhubarb may be propagated either by sowing the seeds or purchasing young roots of one year's growth, and planting them during the spring months in a good rich soil. In the former case, that is, if the seeds be sown, they are to be transplanted in a few weeks, and in the following year their stalks will be large enough to pull. If roots be obtained and planted in March, the plot will be available in a month or six weeks. No further care is requisite than to manure the bed in the autumn after the leaves have decayed. To those who are unaccustomed to the plant which is the subject of our eulogium, it may be as well to mention, that the stalks should never be cut from the bed, but wrenched sideways with a sudden twist, when the whole stalk comes away at its junction with the root—round, flat, clear, and white as milk.

As soon as the growth becomes vigorous, each root sends up a flower stalk, which will readily be distinguished from the leaf stalks; these must be pulled away, and only one left (if it be intended to procure seed,) and this plant should be less used than the others, if at all, during the season. The leaves are enormous; we have measured many that have been four feet long and three and a half wide. The roots, too, are gigantic—so large that, in the course of three or four years, a single root, when digged up, would fill a wheelbarrow: hence the plants require a wide space—say five feet apart every way.—*Edinburgh Quarterly Journal of Agriculture.*

* This valuable plant was introduced into the Albany Nursery four years ago. Twelve stalks, shown at the late Horticultural Exhibition, weighed 12¼ lbs. It is the best fruit for pies. It is perennial, hardy, and, on rich ground, is as certain a crop as horse radish.—*Cond.*

## London Lactaries.

To those unacquainted with this vast metropolis, and the almost incalculable amount of supplies the number of its inhabitants must necessarily require, the article of milk must appear not the least striking.

The writer of this little notice—an invalid, spending an interval in the vicinity—is enabled to give the following description of Laycock's Dairy at Islington.

The lactary covers a space of sixteen acres, including the layers, grain-pits, rick-yards, &c. &c. It contains nine cow-houses, each about one hundred and forty feet in length, by twenty-four feet broad, either of these contains sixty-four cows, thirty two on a side. There are also fatting-pens, and an infirmary for such of them as may happen to require temporary separation; these instances, however, considering the great number kept, and the artificial mode of treatment, are but rare, the writer being assured by the resident veterinary surgeon, Mr. Stavley, to whose politeness the former is indebted for his information, that nearly the *only* inconvenience felt is, that arising from lameness. The animals, all of the finest description, are constantly kept in their houses both day and night, in the summer season only being turned out for a few hours daily into the layers. Cows are rarely kept here longer than twelve months, during which period they are regularly milked, and what may appear extraordinary to those ignorant of the management, the process of fatting goes on with the milking; so that by the time they become what is termed "dry," most of them are fit for Smithfield, and but few of the number (six hundred constantly kept) require "stalling" after the period of milking is at an end.

The writer has viewed several in an extraordinarily high state of condition, (almost fit for a Christmas show) at the time the Cambrian and Hibernian women were sitting upon their stools, each exercising with inconceivable volubility her vernacular tongue, and "filling her milking pail."

This number affords twelve hundred gallons of milk per diem, upon the average; it is taken away at an early hour of the morning and afternoon by the venders, who purchase here to retail in the metropolis.

The average worth of each cow is about 18*l.* which, assuming the number kept always to average six hundred (the minimum rather than otherwise) gives a capital of 10,900*l.* always afloat to stock this stupendous dairy with cows only.

Their feed consists of grains, mangold wurzel, the Swedish turnip (the latter for fatting), and hay; at the rate of

1 bushel of grains,
56 lbs. of mangold wurzel, or turnip,
12 lbs. of hay,

to each; or

600 bushels of grains,
15 tons of wurzel and turnip,
3 6-28 tons of hay,

per day, to the total number.

The quantity of butter made here is, for an obvious reason small; and rarely exceeds 100 lbs. per week.

The number of pigs kept here is about 400; some bred, others bought in, but all fatted here.

Forty horses are always required, and constantly employed upon the dairy.

The layers are capable of receiving 1,600 head of fat cattle, exclusive of sheep; and the average number for Smithfield market, resting here weekly, is 800; the charge of layerage being 3d. per head, and fodder at the rate of 3s. per 56 lbs. or truss.

Such is *one* of the London Lactaries—there are many of them, some of larger, several of equal, and a few of inferior extent.

From this brief description of one, however, some idea may be formed of the consumption of this nutritious article of our food, but which, nevertheless, forms so inconsiderable a portion of it, called milk. J. R.

## The Danger of Fashion.

I think that a slight examination will convince any one that the present fashions and modes of dress are far more injurious to health than any other cause whatever. The human system, when fully developed, and healthy in all its parts, is a highly complicated and most beautiful fabric; composed of a number of distinct organs, each acting in the most perfect harmony with every other; and each performing its own separate and independent function with a nicety and precision which no art can imitate. The lungs, for instance, are formed by nature with a capacity just sufficient to admit the requisite quantity of air for purifying the blood and no more. Hence, if the chest is contracted, and the lungs in any degree compressed, the blood is not sufficiently purified, and unless the compression is speedily removed, ill health, nervousness, &c. is invariably the necessary consequence. And the same may be said of every other important organ. How, then, can a mother expect her daughter to grow up in health and vigor, when before she has passed the tender age of seven, she is *corsetted* and placed in a snug dress for the avowed purpose of making her "grow trim and of a beautiful form." Is it not apparent to every observer that by these means the chest is trammelled in all its movements—the lungs thereby prevented from their natural degree of expansion, and consequently the blood is imperfectly purified; the heart, too, is unduly compressed, the stomach crowded downward, and the muscles of the chest and back prevented from becoming fully developed? Now the consequence of all this is, that in a few years the skin becomes sallow; the heart palpitates, there are frequent congestions of the lungs; dizziness, and perhaps pain in the head; frequent pains in the back and side; general debility and nervousness; and perhaps more or less distortion of the spine, the very thing above all others which the kind mother wishes to avoid. But the mandates of fashion are irrevocable, and consequently the same mode of dress is persisted in. Now the doctor is called, and a course of medicine endured; then a few weeks or months at Saratoga, or peradventure a trip to the south. She returns perhaps partially restored; marries, lingers a few years as a mother, and then sinks into an early grave—leaving a few feeble and delicate children to the cold charities of the world. Dear reader, have you never beheld a case of this kind? Alas, it is but the brief history of too many. Indeed, how can a young lady expect to receive any benefit from exercise while her arms are bound down, and her waist contracted by means of corsets, belts, &c. in such a manner as totally to prevent all natural action of the muscles of the chest and back? She may indeed walk, but it will only serve to throw the blood with more force into the already compressed and engorged lungs, and thus increase the nervousness, palpitations, exhaustions, &c. Let me not, however, be understood as undervaluing proper exercise, for I am only endeavoring to show that attempts at exercise, while the body is restrained in all natural movements is a mockery, and worse than useless. Neither would I confine my remarks to the females alone; for I have found that many young gentlemen, especially in our cities and villages, make their vests, &c. answer precisely the same purpose as the ladies' corsets and belts.—*Christian Advocate.*

## Beet Sugar.

The editor of the Yankee Farmer is drawing the attention of the public to the importance of introducing into this country the manufacture of sugar from the beet, and contemplates visiting France, if he receives sufficient aid from those who feel an interest in the matter (of which, from a recent statement, there seems to be a probability will be accorded him,) in order that he may more fully be enabled to make an experiment that will demonstrate its practicability, by the introduction of a new process recently adopted in France, by which 180 lbs. of white refined sugar is obtained from a ton of beets—2000 bushels is 60 tons, and the product of 60 tons will be 10,000 lbs. of sugar. The editor makes the following calculations as to the expected result of the experiment on the data here given.

| | |
|---|---|
| 10,000 lbs. white sugar worth at least 12 cts. ..... | $1,200 |
| 6 tons pomace,..... | 30 |
| Machinery and fixtures, ..... | 300 |
| Premium from Massachusetts State Agricultural and other societies, ..... | 200 |
| Massachusetts state bounty, ..... | 300 |
| | $2,030 |

The editor has no doubt of the entire success of the experiment, and gives a statement from the report of the "*Societie d' Encouragement.*" from which it appears that farmers in France make sugar for 4 cents per lb. and that two young men, who invested 500 francs in the business, manufactured 100 lbs. white refined sugar daily, worth in that market 16 cts. a pound, and estimate the cost of their sugar to them as follows:

| | |
|---|---|
| One ton of beets,..... | $3 20 |
| Cost of cutting, drying, and extracting the sugar, .. | 4 00 |
| Total cost for 180 lbs. of sugar,..... | $7 20 |

—*American Farmer.*

## Hoeing Corn late will frequently protect it from frost.

Mr. Editor—If an individual has, by a simple experiment, or long experience, discovered any thing of practical utility, calculated to benefit his fellow men, and the community, I hold that it is his bounden duty, as well as his privilege to communicate such facts, that others may participate with him in the blessing; and more especially when such knowledge can be imparted and not operate in the least prejudicial to himself.

I have been a cultivator of the soil from my youth, and for thirty years never failed in a crop of ripe corn.

My method has been, when, in the fall there are indications of frost and my corn in danger of not being ripe, I muster my hands and commence stirring the earth about one inch deep, with our hoes, having learned that stirring the ground, and loosening its surface, would more readily cause it to absorb the rays of the sun, and produce more heat than it would if it had not been disturbed.

I once had a piece of corn, about three acres nearly surrounded with woods, and much exposed to the frost. Before it was ripe there was every appearance of frost, and I commenced hoeing it. The sun shone clearly upon that and the following day, and the night succeeding there was a very severe frost. Early the next morning, I started out to examine its effects upon my corn, the fields and fences were white, and as I went through my neighbor's corn I found it stiff and consequently dead. I entered my field and although frost carried every thing immediately around it, my corn was not in the least injured, but was covered with a heavy dew. I obtained a good crop, while my neighbor's was entirely cut off.

If you consider the above worth a place in your paper you may publish it. I. L.

*West Hallowell, June 24, 1839—Maine Cul.*

This *is* "worth a place," and there is practical philosophy for the reason of it. Stirring the earth opens the pores, the consequence is, a greater collection of moisture upon the plants, which withstands frost.—*Ed. Cul.*

## Infant Schools of Agriculture and Horticulture in France.

An establishment has lately been formed in the department of Gard, for giving practical lessons in horticulture and agriculture to children. Full success has attended the attempt, and the example is about to be followed in other quarters.—Two acres of empty land were divided into nursery, corn land, flower gardens and kitchen gardens. All the inhabitants of the neighborhood assist in conveying instruction to the children, or in smoothing their progress. A regular instructor is appointed, who gives lessons on gardening, in which he is aided by the cultivators who live near. The

Mayor and the Curé employ their influence in putting aside such obstacles as prejudice or long established custom might throw in their way. The forest ranger is useful in pointing out the exact state of the laws respecting trees, and the proprietors of land supply seed, corn and flowers. Half of the produce is given up to the instructor, a portion of the other half is distributed as a recompense amongst the pupils, and the remainder is sold to the inhabitants of the village. After some time a considerable sum is raised from these sales, the money is laid out in defraying the general expenses, in purchasing tools, in providing seed without being indebted for it to the kindness of the proprietors, and in increasing the emoluments of the instructor. The little farm is thus found to advance rapidly to perfection, and in a short time is the most productive spot of ground in the country; of course it is understood that all the work is done by the pupils; were it otherwise, the object of the institution would be entirely lost, as practical instruction would no longer be given. These infant schools for horticulture and agriculture are on the increase in France.—*Laborer's Friends' Magazine for April*, 1839.

## On the Cultivation of Roots, &c.

[*From the Essex Agricultural Society's Transactions.*]

*Methuen, February* 16, 1839.

Dear Sir—Taking a deep interest as I do in agricultural pursuits; and believing that by interchange of views, and making public our experiments, the agricultural interest may be promoted; I have concluded to comply with your request, and state my success the past season in the cultivation of roots. The land which was last year planted with potatoes, was ploughed and dressed with six cords of green manure to the acre. On the 14th of June, I planted three-fourths of a pound of ruta baga seed mixed with one bushel of plaster of paris, on three-fourths of an acre of land—planted in drills two and a half feet apart. After they came up, I applied six bushels of wood ashes; thinned them out when they were of suitable size for transplanting; hoed them three times; gathered them the first of November, and estimated them at 700 bushels on the piece. I planted half an acre in another piece, on light pasture land, which was last year sowed with oats without manure; it was manured and managed the same as the other piece, excepting the manure was of different kinds. In consequence, as I supposed, of being planted too deep, they came up thinly, and the weather being extremely dry, it prevented my transplanting them. I gathered 250 bushels on the piece; I think that had they come up well, they would have yielded from 700 to 800 bushels to the acre. I think there was one-half difference in the size of the turnips on different parts of the piece, owing to different kinds of manure, but I could not recollect what kind of manure was applied where the turnips were the largest. It would be well to try the experiment, to ascertain what kind of manure is most suitable for them. I commenced plucking the under leaves from the turnips on the first mentioned piece, about the first of September, for my cows, but thinking it might injure the roots, I discontinued about the 15th. When I gathered them I could perceive no difference where the under leaves were plucked off, and where they were not. I think the leaves on that piece, as there was a luxuriant growth, would have kept my eight cows, in addition to running in the pasture, until the last of October. I think the leaves of considerable value, as we have them at that season of the year when stock requires extra feed.

I also raised about 50 bushels of mangel wurzel; had they been planted thick enough, I think their yield would have been nearly the same as the ruta baga; I think they should be planted thicker than ruta bagas, as their tops are not so large; as to their comparative value, perhaps I am not a suitable judge; as I have had but little experience, but I am certain of this, that the hogs like mangel wurzel much better than turnips. I am of the opinion, however, that both kinds are much more profitable to raise for stock feeding than potatoes.

I will also state one or two experiments in regard to apples. I have for the last four years fattened a beef for my own use each year, mostly on apples. The first of October, 1836, I dried a cow which was in ordinary flesh, and commenced feeding her with apples the first of November. I killed her about the middle of January, 1837; the beef was fat and of a good quality; she was fattened exclusively on apples.—The first of November, 1838, I commenced feeding a cow with apples; I think she ate about three and a half pecks per day; about the 25th of December, she refused eating apples, in consequence of their being some rotten. I fed her with ruta bagas until the 9th of January, when I butchered her. The beef was fat, and of good quality, (what I mean by being of good quality, aside from being fat, is, it cooked well, and did not taste like apples, nor turnips, as some suppose,) but tasted like beef. The cow had a calf in the spring, gave a good mess of milk during the season, and I dried her about the 25th of November.

For the last three years, I have kept my hogs mostly on apples during autumn and first of winter, and they have thriven well, but as I gave them some other food, I can make no definite statement. Experiments have been tried by other individuals in my neighborhood with nearly the same success.

I am aware that some of my brother farmers may doubt my statement in regard to the value of apples, (especially those who are fond of cider.) But I would ask them to try the experiment.

You are at liberty make such use of the above statement as you may think proper. Respectfully yours,

JOSEPH HOW.

To J. W. Proctor, Esq. *Sec'y of the Essex Ag. Soc.*

## The Farrier.

[*From the Maine Farmer.*]

*Try before you buy.*—If you meet with a horse you like, and are desirous of buying him, do not fall in love with him before you ride him, for though he may be handsome, he may start or stumble.

*To discover a stumbler.*—If you go to buy of one that knows you, it is not unreasonable to desire to ride him for an hour. If refused, you may suspect he has some faults; if not, mount him at the door of the stable where he stands; let him neither feel your spurs, nor see your whip; mount him easily, and when seated, go gently off with a loose rein, which will make him careless; and if he is a stumbler, he will discover himself presently, especially if the road in which you ride him be any thing rough.

The best horse indeed may stumble (a young one of spirit, if not properly broken in, will frequently; and yet if he moves nimbly upon the bit, dividing his legs true, he may become a very good saddle-horse,) I say, may stumble; but if he springs out, when he stumbles, as if he feared your whip or spur, depend upon it he is an old offender. A horse should never be struck for stumbling, or starting: the provocation, I confess, is great, but the fear of correction makes him worse.

In the purchase of a horse, examine four things—his teeth, his eyes, his legs, and his wind.

*To know his age.*—Every treatise on farriery has instructed us to know a horse's age by the mark in his mouth; but not one in five hundred (a dealer excepted) can retain it in his mind. I have endeavored, therefore, to represent it by a plate.

Every horse has six teeth before in each jaw; till he is two years and a half old, they are all smooth and uniform in their upper surfaces.

At two years and a half old he sheds the two middle teeth, (by the young teeth's rising and forcing the old ones out,) which at three years old are replaced by two hollow ones.

When he is about three years and a half old, he sheds two others, one on each side the two middle ones, which at four years old are replaced by two others, which are also hollow.

The sharp, single teeth in horses, begin to appear in the lower jaw when the horse is about three and a half, or four years old. When he is nearly six years old, they are full grown, pointed, and concave in the inside.

When he is four years and a half old, he sheds the two corner teeth, which at five are replaced also with two hollow ones, grooved on the inside, which groove marks the age precisely.

At six years of age this groove begins to fill up, and disappear; so do the hollows of the rest of the teeth, which continue till near seven and a half, or eight years old, when all the teeth become uniformly full and smooth.

Crafty jockies will sometimes burn holes in the teeth, to make them appear young, which they call bishoping; but a discerning eye will soon discover the cheat.

*Eyes.*—If a horse's eyes are lively and clear, and you can see to the bottom, and the image of your face be reflected from thence, and not from the surface of the eye, they are good: but if muddy, cloudy, or coal-black, they are bad.

*Legs.*—If his knees are not broken, nor stand bending and trembling forward (which is called knuckling,) his legs may be good; but if he steps short, and digs his toes in the ground, it is a sign he will knuckle. In short, if the hoof be pretty flat and not curled, you need not fear a founder.

*Wind.*—If his flanks beat even and slow, his wind may be good but if they heave double and irregular, or if (while he stands in the stable) he blows at the nostrils, as if he had just been galloping, they are signs of a broken wind. Deceitful dealers have a draught which they sometimes give, to make a horse breathe regularly in the stable, the surest way therefore to judge of his wind, is to give him a good brushing gallop, and it is ten to one, if his wind be broken, or even touched, that he will cough and wheeze very much, and no medicine can prevent him doing so.

*Cure for a broken wind.*—A broken wind may be cured, if the following be applied on the discovery of it:—A quarter of a pound of common tar, and the like quantity of honey; beat them well together, then dissolve them in a quart of new milk; let the horse fast two hours before you give the drench: walk him an hour after, and let him fast two hours; give this drench every second day with warm meat and drink.

*A draught-horse.*—A horse with thick shoulders and a broad chest laden with flesh, hanging too forward and heavily projecting over his knees and feet, is fitter for a collar than a saddle.

*A saddle-horse.*—A horse with thin shoulders, and a flat chest, whose fore feet stand boldly forward and even, his neck rising semicircularly from the points of those thin shoulders to his head, may justly be said to have a light forehand, and be fitter for a saddle than a collar. As most horses in the hands of farmers are drawn while they are young, which notwithstanding their make, occasions them to move heavily: if you desire a nimble-footed horse, choose one that has never been drawn.

In buying a horse, inquire into four other things, viz: biting, kicking, stopping and starting.

A horse may be sound, though guilty of all four, which a man can hardly discover by barely looking on him; so I refer you to his keeper.

When you are buying, it is common for the owner to say in praise of his horse, that he has neither splint, spavin, nor windgall.

*The Splint.*—The splint is a fixed callous excrescence or hard knob, growing upon the flat of the in or out side (and sometimes both) of the shank-bone; a little under, and not far from the knee, and may be seen and felt.

To take it off, shave the part, and beat it with a stick, prick it with a nail in a flat stick, clap on a blistering plaster as strong as you can make it; let it lie on three days; then take it off, and rub the place with half a drachm of the oil of origanum, and as much oil of vitriol, mixed; if the first does not do, rub it a second time with the oils; if you find any remains of the splint, apply a second blistering plaster for twenty-four hours, walk him moderately to prevent any swelling or excrescence from settling.

Most young horses have splints, more or less, and they will occasion lameness while they are coming upon the bone; but after they are grown to the firmness of bones, they do not lame a horse, nor is such a horse worse for use, though he may not look so well to the eye.

*The Spavin.*—The spavin is of the same nature, and appears, in like manner, on the instep bone behind, not far below the hough. To take it off, beat the bone with a bleeding stick, and rub it; then anoint it with the oil of origanum, tie a wet cloth about it, and with a hot brick applied to it, soak in the oil, till it be dry.

*Windgall.*—Windgalls are several little swellings just above the fet-lock joints of all the four legs; they seem when felt, to be full of wind or jelly, but they never lame a horse; the splint and spavin always do. They all three proceed from one and the same cause, which is hard riding, travelling too far in one day, or carrying too great a weight when young.

*Setting out on a journey.*—Whenever you intend to travel, hunt, or only ride out for the air, let your horse's feet be examined sometime before, to see that his shoes are all fast and sit easy on his feet, for on that depends the pleasure and safety of your journey.

*Directions for mounting.*—Before you mount, look round your horse, to see if his bridle, curb, saddle, and girths, are all fitted in their proper places. Always accustom your horse to stand firm and without a motion, till you are fixed in your seat, and your clothes be adjusted.

*Directions for going.*—When you would have him go, teach him to move by pressing close your knees, or speaking to him, without using whip or spur; for a horse will learn any thing; and a good quality may as easily be taught him as a bad one.

*Corrections ill-timed. Corrections well-timed. An easy rein.*—Most men whip and spur a horse, to make him go faster, before they bid him: but it is cruel treatment to beat a generous creature before you have signified your mind to him (by some token which he may be taught to understand,) who would obey you if he knew your pleasure; it is time enough to correct him when he refuses, or resists you. Do not haul his head about with too tight a rein, it deadens his mouth; besides, he will carry you safer, and take better care of his steps with an easy hand, than a heavy one: much depends on the quietness of the bridle hand. Keep your elbows steady, and you cannot hurt his mouth. Again, nothing discovers a bad horseman (even at a distance) so much as throwing his arms and legs about; for it is easiest to the horse and rider, and he can carry you farther by ten miles a day when you sit as steady upon him as if you were a part of himself.

## Employment of Mineral Tar or Pyroligneous Liquor, for the protection of Walls of Masonry or of Mud.

When the walls are thoroughly dry, towards the end of summer (having previously been either newly built or put into a state of thorough repair), they are to be coated over, once, twice, or thrice, with the tar. The last coat, immediately when put on, may be powdered with sand; and this, when solidified, may be whitewashed. In France, earthern walls, and the walls of court yards and terraces, are treated in this manner, and so rendered of great durability.—(*Annales des Ponts et Chaussees*, as quoted in the *Frank. Jour.* vol. xxii. p. 284.)

## To prevent Horses being teased by Flies.

Take two or three small handfuls of walnut leaves, upon which pour two or three quarts of cold water: let it infuse one night, and pour the whole next morning into a kettle, and let it boil for a quarter of an hour;—when cold it will be fit for use. No more is required than to moisten a sponge, and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor, viz. between and upon the ears, the neck, the flank, &c. Not only the lady or gentleman who rides out for pleasure, will derive benefit from the walnut leaves thus prepared, but the coachman, the wagoner, and all others who use horses during the hot months.—*Farmers' Receipt Book.*

## Efficacy of Stinkweed.

[*From the American Farmer.*]

Sir—A lady has caused to be published in the Chronicle, that hogs-lard rubbed on a bedstead with a piece of woollen cloth, will prevent the bed-bug from infesting the bedstead.

An extract obtained by stewing Gympson or Jamestown weed,* in fish oil, and rubbed on bedsteads and posts, and the wash-boards n a lodging room, is found from practice, to destroy bed-bugs and other insects that infest a room during the warm summer months. During the excessive heat and drought of last summer, a lodging room in the third story of an old inhabited brick house on St. Paul's street, was infested with bed-bugs. The extract of Jamestown weed stewed in common fish oil was applied; it destroyed the bugs, and no musquitoes annoyed the person who slept in it. The moth fly and common flies did not appear in the room. Spermaceti whale oil had better be made use of instead of the common fish oil. The South Sea Islanders anoint their bodies with fish oil in order to protect them from the annoyance of insects.

An extract of Gympson or Jamestown weed, made by stewing the leaves and tender stalks in common fish oil, might be applied to seed wheat and corn, with a brush, stirring the heaps, to be kept in a close room ten or fifteen days before sowing or planting. It would be offensive to birds and insects—The germ of the Hessian fly and other insects might be destroyed by it. The quantity of oil required would be inconsiderable; it now sells at 46 cents per gallon.

The extract might be applied to advantage on the roots of peach trees when replanted, and an application of it might be applied to seeds generally.

The extract destroys lice and other insects on animals.—A little rubbed on the head and back of sheep when sheared, would prove advantageous.

Metallic and vegetable poisons are much used in spirits, which are greatly objectionable, on account of the danger of keeping the solution in families. Any poison in fish oil would not be dangerous.

Gympson leaves and tender stalks, stewed in any oil or grease of any kind, until the leaves and stalks become soft, then strained and squeezed through coarse linen fabrics, gives an extract which will keep good for use a number of years. A.

[The above is from a highly respectable source, and should any of our readers make any experiments on the hints given therein, they might render a service to the public by making known the results.]

* The *Datura stramonium* of Lin.—The stinkweed of the north.—*Cond. Cult.*

### Preserving Wood by Lime Water.

We find the following article in (English) Mechanics' Magazine.

"Sir—I some years ago called the attention of the readers of your instructive periodical, to Sir Charles Steward Menteith's (of Closeburn, Dumfrieshire,) simple *unpatented* method of preserving timber; I think it so valuable a process that it cannot be too often published. It is as follows:—After cutting the timber to the size it will be wanted, it is steeped in a pond of lime and water for a fortnight, or more or less time, according to the size of the wood. Sir Charles has now some farm-buildings on his estate, the timber of the roofs of which is the common young Scotch fir, but having undergone the *lime water* process, it is as sound, after a lapse of forty years, as the day it was put up: the same timber, under ordinary circumstances, and in similar situations, would rot in from three to seven years. The carpenters find, in working the wood thus treated, that the edges of their plane-irons soon become dull; on examination, it is found that the acid contained in the wood is chrystallized by combining with the alkali of the lime. Yours faithfully,

"ARTHUR TREVELYAN.

"*Wallington, Newcastle, Tyne, 7th May*, 1839."

### Use of Lime.

Lockhart, in his Life of Sir Walter Scott, relates the following anecdote:

"There see," he continued, "that farm there at the foot of the hill, is occupied by a respectable enough tenant of mine; I told him I had a great desire for him to try the effect of lime on his land. He said he doubted its success, and could not venture to risque so much money as it would cost. Well, said I, fair enough; but as I wish to have the experiment tried, you shall have the lime for the mere carting: you may send to the place where it is to be bought, and at the term day you shall strike off the whole value of the lime from the rent due to me. When the pay day came, my friend the farmer came with his whole rent, which he laid down on the table before me, without deduction. "How's this my man; you are to deduct for the lime, you know." "Why, Sir Walter," he replied, "my conscience will not let me impose upon you so far—the lime you recommended me to try, and which but for your suggestion I would never have tried, has produced more than would have purchased the lime half a dozen times over, and I cannot think of making a deduction."

## Young Men's Department.

### Chemical Catechism—Chapter VIII.

[*From Parkes' Chemical Catechism.*]

OF SALTS.—[CONTINUED.]

*What is meant by the* DELIQUESCENCE *of a salt?*

Some salts have so great an affinity for water, that they absorb it with avidity from the atmosphere. Such salts thereby become moist or liquid, and are said to deliquesce, by exposure to atmospheric air.*

*What is meant by the* EFFLORESCENCE *of a salt?*

Some salts, having less affinity for water than atmospheric air has, lose their water of crystallization by exposure, and readily fall into powder: such salts are said to effloresce. The crystals of sub-carbonate of soda and of sulphate of soda are good examples of this property.

*Are salts capable of any other changes besides efflorescence and deliquescence?*

Yes: salts have the properties of solubility† and fusibility.

* Table of the action of atmospheric air on some of the most common salts.

| | |
|---|---|
| Pure potash, | Deliquesces. |
| —— soda, | Deliquesces. |
| Carbonate of potash, | Deliquesces. |
| Bi-cardonate of potash, | Remains unchanged. |
| Carbonate of soda, | Effloresces. |
| —— ammonia, | Do. |
| —— lime, | Unchanged. |
| —— magnesia, | Do. |
| Sulphate of potash, | Do. |
| —— soda, | Effloresces. |
| —— lime, | Unchanged. |
| —— ammonia, | Sub-deliquesces. |
| —— magnesia, | Unchanged. |
| Nitrate of potash, | Do. |
| —— soda, | Sub-deliquesces. |
| —— ammonia, | Deliquesces. |
| —— barytes, | Slightly efflorescent. |
| —— lime, | Deliquesces. |
| —— magnesia, | Deliquesces. |
| Muriate of potash, | Unchanged. |
| —— soda, | Do. |
| —— lime, | Deliquesces. |
| —— ammonia, | Sub-deliquesces. |
| —— barytes, | Unchanged. |
| —— magnesia, | Deliqueces. |

† Table of the comparative solubility of some of the common salts.

| SALTS. | *Solubility in* 100 *parts of water.* at 60°. | at 212°. |
|---|---|---|
| Sulphate of potash, | 6.25 | 20. |
| —— soda, | 37. | 125. |
| —— lime, | 0.22 | 0.2 |
| —— ammonia, | 50. | 100. |
| —— magnesia, | 100. | 133. |
| Nitrate of potash, | 14.25 | 100. |
| —— soda, | 33. | 100. |
| Muriate of potash, | 33.42 | |
| —— soda, | 35. | 36.16 |
| —— lime, | 200. | |
| —— ammonia, | 33. | |
| Carbonate of potash, | 25. | 33.33 |
| —— soda, | 50. | 100. |
| —— ammonia, | 50. | 100. |

*What is meant by the* SOLUBILITY *of a salt?*

It is its capacity to unite with and remain dissolved in water; but the different salts possess different degress of solubility,* requiring more or less of this fluid for their solution.

*What is meant by the* FUSIBILITY *of a salt?*

Salts have not only the property of dissolving in water, but will melt by exposure to great heat. The different salts require different degrees of heat to put them in a state of fusion.

*Have the different salts any action upon each other?*

Yes: we have many instances of salts mutually decomposing each other.

*What takes place in these decompositions?*

When such salts are mixed in solution, the acid of the *first* and the base of the *second* having more affinity for each other than for the base and acid with which they are respectively combined, double decomposition, as it is termed, ensues. The acid of the first unites with the base of the second, and consequently the base of the first combines with the acid of the second; so that two new salts are produced, differing in appearance, and possessing properties different from those of the original salts.

*What is the cause of this effect?*

It is occasioned by mutual chemical attraction, and the operation itself is called double decomposition, or the effect of compound affinities.

*Can you give a example of this double decomposition?*

Yes: If you add a transparent solution of sulphate of soda, or Glauber's salt, to one of muriate of lime, the solution is immediately rendered turbid, and two new salts are formed. The sulphuric acid of the sulphate of soda combines with the lime of the muriate of lime and forms sulphate of lime or gypsum, and the soda which was combined with the sulphuric acid seizes the muriatic acid previously united to the lime and forms muriate of soda, or common salt, which continues in the solution, but may be obtained in a dry form by evaporation and crystallization. The white powder which precipitates, is the newly formed sulphate of lime.

*What other use is made of these decompositions?*

By these means many valuable salts are procured for the use of the chemist and the manufacturer, which can be formed in no other way.

*What knowledge have we attained respecting the* native *salts?*

Many of the salts are found native; and since the science of mineralogy has been so much cultivated, great attention has been paid to these natural productions.

*What salts are furnished by nature in the greatest abundance?*

The carbonates, the sulphates, and the muriates are most abundant; but some of the nitrates, borates, &c. are also found native.

*Which of the carbonates have been found native?*

Of carbonate of lime† there are immense mountains in most parts of the world: carbonate of barytes has been found in Lancashire and elsewhere; carbonate of strontites, at Strontian in Scotland; carbonate of soda in the natron beds of Egypt, in the East Indies; and carbonate of potash, as well as the carbonate of soda, has been discovered in some spring waters.

*What sulphuric salts are found native?*

Sulphate of soda is found in some salt springs; sulphate of magnesia, in spring water;‡ the sulphate of alumina is abundant at Whitby and Glasgow; sulphate of barytes, in Derbyshire and other parts of the world; the sulphate of strontites abounds in some parts of Gloucestershire; and few salts are more copiously disseminated than the sulphate of lime, particularly in the vicinity of Paris, and hence its name *Plaster of Paris.*

*What native muriatic salts are there?*

Muriate of lime occurs with rock-salt, and muriate of magnesia is found in abundance in sea-water; muriate of ammonia appears in the neighborhood of volcanos; and muriate of soda not only exists in immense quantities in the ocean, but vast mountains in different parts of the world are entirely formed of this salt.§

* We generally denominate all salts as insoluble, which require for solution more than 1000 times their weight of water. An opinion may in some measure be formed of the *solubility* of a salt by its force. Those salts which have the most taste are generally the most soluble in water. Thus Epsom salt dissolves in its own weight of water at the common temperature of the atmosphere, and the solution continues perfectly fluid and transparent; while sulphate of lime requires 500 times its own weight of water to hold it in solution.

† Chalk, limestone, and marble, are all included in the term, carbonate of lime. The late experiments of Sir James Hall have thrown great light on the formation of these natural productions. See *Edinburgh Philosophical Transactions*, vol. iv.

Carbonate of lime is found also in a crystallized state, in a mineral called *calcareous spar.* It has never yet been crystallized by art. This process of Nature may require many ages to effect, for aught we know.

‡ Sulphate of magnesia and sulphate of lime are both very common in our spring waters; the last salt and supercarbonate of lime are the chief causes of what we call *hard* waters, which are very unwholsome, and unfit for washing. When soap is used with these waters a double decomposition takes place: the sulphuric acid of the selenite unites with the alkali of the soap and forms sulphate of potash or sulphate of soda, which remains in solution; while the magnesia or lime unites with the tallow, and forms an insoluble compound which swims upon the surface of the water like curds. In this way hard waters require much more soap for any given purpose than rain water, or waters which do not contain these earthy salts. Such waters are also unfit for boiling any esculent vegetable; but they may be rendered soft by adding to them a very little carbonate of soda, or carbonate of potash, 24 hours previous to their use. By this addition a decomposition will be effected, and the carbonate of lime, a very insoluble salt, precipitated.

§ The salt mines near Cracow in Poland, which have been worked ever since the middle of the thirteenth century, contain an immense store of muriate of soda. The excavations have been made with so much regularity and beauty, that these mines are visited by travellers as one of the greatest curiosities in the world. Eight hundred workmen are employed in them, who raise 168,000 quintals of salt annually. Through the enormous mass of salt, which presents to the eye no interruption in its saline texture, and at the depth of 450 feet, flows a stream of pure, fresh and transparent water, which is received in large wooden vessels, where the workmen and horses of these subterranean regions quench their thirst. As it was impossible that this spring could filter through the salt, Nature, who buries her masterpieces in the bowels of the deepest mountains, has placed in this monstrous mass a stratum of clay sufficiently thick to allow the stream of water, destined to refresh the workmen, to pass through it in such a manner as to be protected from the action of the salt, of which a very small quantity would injure its salubrity.

*Which of the* NITRIC *salts are found native?*

Nitrate of potash is collected in various parts of the globe; nitrate of magnesia sometimes occurs in combination with that salt; and nitrate of lime is found also in the same combination, and likewise in mineral springs: these are the only nitric salts that have been seen native in any large quantities.

*Are any other of the salts found native?*

Yes: vast rocks in Derbyshire and elsewhere are formed of fluate of lime; borate of soda is found in a crystallized state in the kingdom of Thibet; borate of magnesia at Luneburg in the kingdom of Hanover; and phosphate of lime, which is the basis of all animal bones, exist native in Hungary, and composes several entire mountains in Spain.

*How do you imagine that these immense masses of salts have been formed by nature?*

The huge mountains of salts we have been speaking of, and which occur in various parts of the earth, were probably formed in very remote ages, and by processes of which we can form no idea. It may indeed be supposed that these changes have been slow and gradual, for several of the native salts exhibit marks of regularity and beauty in their crystallization, which cannot be imitated by art.*

*Have geologists attempted to account for the production of the immense quantities and varieties of salts found in different states in various parts of the earth?*

The cause of this order of things can only be referred to the will of the Creator,† who has seen fit, in the composition of many of the mountainous parts of the globe, to prefer these compound substances to the more simple and inert earths.

* In order to account for these productions of Nature, various *theories* of the world have been formed by philosophers in different periods. Some of these have had many supporters. Thus we have had the theories of Burnet, Woodward, Whiston, Buffon, Whitehurst, Laplace, and other noted geologist who have written on the subject since their time.

The theories which divide the opinions of the philosophers of the present day, are those of Hutton and Werner. The former supposes the agency of heat, and is called the Plutonian system; the latter, which attributes all the present appearances of the globe to the effect of water, is called the Nepturian system.

† We have abundant reason to believe that nothing is fortuitous, but that every thing upon this fair world of ours is the effect of design; for every thing around us bears evident marks of the skill and beneficence of its Omnipotent Author. Is it not then reasonable to infer, that the formation of the whole of the globe entered into the divine plan; and that the constitution of the interior of its mountains resulted from the determination of infinite wisdom, and must have important uses in some future period of the world?—

"For, lives the man whose universal eye
Hath swept at once the unbounded scheme of things;
Mark'd their dependence so; and firm accord,
As with unfaltering accent to conclude
That this availeth naught?"

It is probable indeed, that the profusion of earthy and alkaline salts which occur in the more elevated parts of the earth may, among other purposes, have been intended as magazines for the future renovation of the soils in their vicinities. They are in general of a nature to be washed down by the rains; and, by means of rivers, &c. are sometimes transported to considerable distances from their native beds. It is remarkable that these salts are generally found only in the *secondary* mountains, the materials of the *primitive* rocks being entirely different. These latter contain no remains of organic bodies whatever, and are composed, for the most part, only of five ingredients, viz: silica, alumina, lime, magnesia, and iron; of which *silica* is by far the most abundant, and universal. Though a comparative softness has been given to the secondary mountains, which thus appear to have been designed for the successive production of alluvial depositions, for the renovation of soils, &c.—the rocks of granite, the foundations of the globe, are so extremely hard, that it is imagined they would resist the constant wash of the ocean for ages without any apparent diminution. Where they were originally fixed by the hand of Nature—

"They still remain,
Amid the flux of many thousand years,
That oft has swept the toiling race of men
And all their labor'd monuments away." THOMSON.

In this arrangement we perceive nothing like a fortuitous concourse of atoms, but, on the contrary, the same satisfactory marks of contrivance, which force themselves upon our notice whenever we contemplate the various phænomena of the world, or study any of the great operations of nature.

*Wealth.*—Wealth in this country may be traced back to industry and frugality: the paths which lead to it are open to all; and such is the joint operation of the law and the customs of society, that the wheel of fortune is in constant revolution, and the poor of one generation furnishes the rich of the next.

In business, the keeping close to the matter procureth dispatch; and true dispatch is a rich thing.

Without frugality, none can be rich—and with it few would be poor.

*Daily value of Sunshine.*—The editor of the Genesee Farmer rates the agricultural products of the United States at *five hundred millions of dollars annually*, the perfection of which depends on the weather of four months, June, July, August and September. Without *sunshine* the crops would be a failure, either totally or partially, and hence we may estimate its average value at *four millions of dollars daily.*

PRICE CURRENT.

| ARTICLES. | New-York, August 22. | Boston, August 21. | Philadelphia, August 20. | Baltimore, August 19. |
|---|---|---|---|---|
| Beans, white, per bushel | 2 25— 2 50 | 2 00— 3 00 | 1 75— 1 87 | 2 00— 3 00 |
| Beef, per cwt | 3 50— 4 00 | 3 50— 4 75 | 3 50— 4 00 | 3 50— 4 00 |
| Bacon, western, per lb | 0 11— 0 12½ | 0 12— 0 13 | 0 10— 0 11 | 0 11— 0 12 |
| Butter, fresh, per lb | 0 16— 0 25 | 0 17— 0 25 | 0 14— 0 16 | 0 12— 0 18 |
| Cheese, per lb | 0 08— 0 10 | 0 09— 0 11 | 0 08— 0 11 | 0 08— 0 12 |
| Cotton, best per lb | 0 10— 0 14 | 0 09— 0 11 | 0 10— 0 11 | |
| Flour, best, per barrel | 6 25— 7 00 | 6 00— 6 50 | 5 25— 6 00 | 5 87— 6 00 |
| GRAIN—Wheat, per bushel | 1 25— 1 37½ | 1 28— 1 33 | 1 25— 1 28 | 1 10— 1 15 |
| Rye, per bushel | 0 80— 0 85 | 0 73— 0 75 | 0 70— 0 75 | 0 70— 0 82 |
| Oats, per bushel | 0 41— 0 52½ | 0 37— 0 50 | 0 33— 0 40 | 0 37— 0 30 |
| Corn, per bushel | 0 85— 0 90 | 0 80— 1 00 | 0 70— 0 80 | 0 70— 0 79 |
| Hams, pork, per lb | 0 10— 0 13 | 0 13— 0 14 | 0 11— 0 13 | 0 10— 0 11 |
| Pork, in bbl, per cwt | 7 00— 10 00 | 9 00— 12 00 | 7 75— 8 25 | 9 00— 9 25 |
| SEEDS—Red Clover, per bushel | 10 00— 12 00 | 9 00— 12 00 | | |
| Timothy, per bushel | 2 50— 3 00 | 3 00— 3 00 | | |
| Wool—Saxony, fleece, per lb | 0 55— 0 60 | 0 50— 0 60 | 0 50— 0 55 | |
| Merino, per lb | 0 50— 0 55 | 0 55— 0 60 | 0 50— 0 55 | |
| f and common, per lb | 0 37½— 0 42½ | 0 45— 0 50 | 0 38— 0 42 | |
| Sheep, per head | 2 00— 3 50 | 1 25— 3 50 | 1 50— 3 50 | 1 50— 3 25 |
| Cows and Calves, each | 25 00—30 00 | 25 00—50 00 | 30 00—40 00 | |

**ALBANY NURSERY.**—This establishment now offers perhaps the best collection of Pears now in the country; [see the June number of the Cultivator.] Also, Apples, Peaches, Plums, Ornamental Trees, Green-House Plants, &c. &c. A catalogue will soon be printed, and forwarded to order. Address J. BUEL & Co. post-paid. tf

**FOR SALE**—The subscriber wishing to close up his business, offers for sale the valuable Iron and Lumber Establishment, formerly owned and occupied by Penfield & Taft, situated on Putts creek, six miles from Lake Champlain, in Crown Point, Essex co. N. Y. The premises in question consist of a valuable water power, with a fall of more than 100 feet within sixty rods; on which there is now in operation a Grist-Mill with three run of stones, propelled by an overshot wheel; two Saw-Mills, one with overshot wheel and double gear, all nearly new and in good order; a Forge with two fires; and a machine shop for pounding and separating ore. The water for propelling these works is held in reserve by four ponds or reservoirs on the premises; the upper one being about 2½ miles in length, forming an ample reservoir for the whole works below, and affording sufficient water in itself for driving a forge with four fires and a rolling mill.

Adjoining the works are 600 acres of land, one-fourth of which is under good cultivation; on which are five dwelling-houses, convenient barns and out-houses, a store, blacksmith shop, and buildings convenient for other purposes.

There is also 1,000 acres of fine timbered land lying two or three miles from the above described works. Also, about five miles distant are 800 acres fine timbered land, on which are two Saw-Mills, and one of the richest, most extensive and valuable beds of iron ore yet found in the U. States.

Also, 1,900 acres of land in the towns of Schroon and West Moriah, Essex co. the greater part of which is covered with pine timber; 100 acres of which is under good culture, and on which is a good saw-mill, blacksmith shop, several dwelling-houses, barns and out-houses.

Also, one-half of a farm of 130 acres, situate on Lake Champlain, near the mouth of Putts creek, 2-3ds of it under good improvement; on which there is a large and convenient wharf.

On examining the above described premises, they will be found to combine unparalleled advantages for prosecuting an extensive business in the manufacture of lumber and iron, and for the sale of ore.

Such parts or parcels of the premises as are necessary for prosecuting the manufacture of iron and the sale of ore, will be disposed of separately from, or in connexion with, the lumbering establishment, as may suit the purchaser.

For the terms of sale, and all further particulars, inquire of the subscriber on the premises. ALLEN PENFIELD.

**FOR SALE**—A Splendid Country Seat in the Highlands, on the Hudson River. That beautiful country residence, known by the name of the BEVERLY ESTATE, containing four hundred acres of land, about two hundred of which are fine level arable soil, of an excellent quality, in a good state of cultivation, and not surpassed by any on the river for fertility; the remainder is fine and thrifty timber land. The situation is the most eligible on the Hudson, extending one mile and a half on the river, with a bold shore and convenient dock, nearly opposite West-Point, and within fifty miles of New-York. The prospect is extensive and diversified, reaching from St Anthony's Peak on the south, to the bay and city of Newburgh on the north. This estate can conveniently be divided into three farms, giving an equal proportion of front on the river, and of arable and timber land to each. Almost every enclosure is supplied with living springs of the purest water. There is on said estate a plain house, (formerly the head-quarters of Gen. Arnold;) also out-houses necessary to carry on the business of the farm. The single fact that during the whole time the cholera raged throughout the state, not one case occurred within ten miles of this place, is sufficient to prove the unrivalled salubrity of the situation. The facilities of intercourse with the city, that can be reached in four hours, by means of numerous steam-boats, are great, and daily increasing, both as regards pleasure, and the convenience of a near market for produce of every description.

For conditions of sale, apply to STEPHEN A. HALSEY, 139 Water-street, New-York, or RICHARD D. ARDEN, on the adjoining farm. Ardenia, 23d April, 1839. j6t

**MULBERRY TREES.**—A few thousand Mulberry Trees are for sale at the Albany Nursery. They consist of the Multicaulis, Brussa, Chinese, that is, the product of Chinese seed, and the common white. The prices will depend upon size and quality. The Brussa is more hardy than the common, and the Chinese about as hardy; and the three kinds are believed to be equal, if not superior, to the Multicaulis, for silk; though it is proper to add, none of the mulberries that we have tried are propagated with so much facility, from buds and cuttings, as the multicaulis. The prices will be conformed to the average market price. tf

**NOTICE.**—The second Fair of the Onondaga and Cortland Association, will be held at Tully, on the first Wednesday of October next, for the exhibition of all kinds of Stock and Mechanics' products. All who feel interested are invited to attend. Tully, August 15, 1839.
Sept-1t. H. A. CHASE, *Sec'y.*

**SOUTH-DOWN SHEEP.**—The subscriber will sell the following Sheep, delivered at Albany, if applied for soon, viz:

| | | | | Price |
|---|---|---|---|---|
| 1 | full bred | South-Down | Buck, (imported,) | 3 years old, $80 |
| 1 | do | do | do | 1 year old, 40 |
| 6 | do | do | do | Lambs, 30 |
| 10 | do | South and Hampshire | Down Ewes, | (some of which were imported by Mr. Hawes, in 1833,) very old, price from $20 to $25. Eight Ewes from 1 to 2 years old, half South Down and half Bakewell, price $10. |

All letters, postage paid, will be punctually attended to.
CALEB N. BEMENT, Three Hills Farm, Albany.

**TO THE SILK GROWERS OF THE UNITED STATES.**—In consequence of the difficulty of purchasing cocoons in the present state of the silk culture in this country, (competent agents for the purchase, at a distance, are not at present to be had,) and as the reeling of the cocoons is the foundation of the whole business in a national point of view, the subscriber is induced to receive cocoons from all parts of the country, to be reeled on shares, in the Italian style, for exportation; the silk to be returned to the owner, or the market price in cash, as may be desired. Persons sending cocoons for reeling, will please name for what purpose it is intended, whether for *Sewing Silk*, which requires 20 to 25 cocoons (or fibres to the thread,) or the finer qualities for weaving, say from 6 to 10, inclusive, and the product will necessarily vary with the *quality* of the cocoons. Worms poorly fed will produce light thin cocoons, and many of them so light that they will fill with water and sink, and consequently be lost. Cultivators will therefore see the importance of producing good cocoons—the largest are not always the best. The cocoons should be firm and hard to the touch. A large spongy cocoon will not yield much silk.

The terms for reeling for the present season, will be 20 per cent of the silk produced from each parcel of cocoons, which as they will be necessarily received in small parcels, will be attended with more trouble and expense than in after years, when the feeding of silk worms will be as extensively followed as is now the growing of cotton.

SAMUEL WHITMARSH.
*Northampton, Mass. July* 8, 1839.

N. B. The cocoons should be thoroughly *seasoned* before packing; they should not be *damp*, as they will *heat* in transportation. All bad cocoons in which the worms have died, should be rejected. They may be packed in flour barrels or boxes, with *holes* bored in the top and bottom, to give air, or in bags within crates, or in any way to prevent crushing them. They should not be crowded, but shaken into the barrels with the floss on. They may be shipped from any part of the U. States, direct to Hartford or New-Haven, Conn. whence they will be received by the canal or river boats, directed to "*Samuel Whitmarsh*, Northampton, Mass." sept-2t.

**IMPORTED CATTLE—BERKSHIRE PIGS.**—The subscriber intending to return to England, offers for sale his stock of Imported Durham Short Horned Cattle and Berkshire Pigs, at his residence, English neighborhood, Bergen county New-Jersey, five miles from New-York. The stock consists of 15 head of milking cows, 1 two-year old heifer, 4 one-year old heifers, and from 8 to 10 spring calves. Four of the above cows are imported, and the remainder are got by the imported Herd-Book Bulls Dishley, Durham, Wye-Comet, Hall's Comet, Memnon, Admiral, Denton, &c.

BERKSHIRE PIGS.—Ten breeding Sows, in pig and with pigs by them at the present time; from 40 to 50 Pigs ready for delivery at any time, at prices from $10 to $20 per pair, delivered in New-York.

The imported Herd-Book bred bull Bloomsbury is with the Cows for the season, and from present appearance will soon all be in calf. The yearlings and spring calves are all by my bull Snow-Ball, late Minevis, by Wye-Comet, dam Nelle, bred by Israel Munson, Esq. of Boston, got by the imported bull Admiral; grand-dam Rosa, bred by Mr. Munson, by the imported bull Denton, owned by Stephen Williams, of Northborough, Mass.; great-grand-dam Tuberose, bred by Mr. Wetherall, and imported by Mr. Munson.

For further particulars, see Herd-Book; Dishley, page 63; Durham, page 567; Wye-Comet, page 200; Admiral, page 2; Denton, page 43; Tuberose, page 524.

BENJAMIN BRENTNALL, English neighborhood,
sept-3t. Bergen co. N. J. 5 miles from N. Y.

**BERKSHIRE PIGS.**—The subscribers are ready to receive orders for their fall litters of Berkshire Pigs.—Several of their sows will come in from the 25th of August to the 5th of September. Orders for the south can be sent to New-York every day in the week, (Sundays excepted,) and reshipped by a faithful person, without charge, except for freight to, or cartage in, New-York. Orders or letters of inquiry, *post-paid*, will receive immediate attention.
sept-2t. H. & J. CARPENTER, Norwich, Con.

**IMPROVED DURHAM SHORT-HORNS.**—Mr. WHITAKER'S third sale of high bred improved Short-Horns, by the ship Napier, will be held at Powelton, near Philadelphia, on Friday Sept. 20, 1839, at 10 o'clock A. M.

The subscriber is authorised by Col. Powell to say, that all the best cattle which he has at any time imported, and the improved short-horns which he considered the best in England, were either in Mr. Whitaker's possession, or were derived from his fold. Col. Powell has not the slightest interest in Mr. Whitaker's sales. Philadelphia, July 15, 1839.
1s C. J. WOOLBERT, *Auctioneer.*

**ALBANY SEED STORE,** GARDEN and AGRICULTURAL SEEDS, IMPLEMENTS, TOOLS, &c. kept constantly for sale at his Seed Store, 317 North Market-street, wholesale and retail, consisting of a large assortment. It is the intention of the proprietor to test all seeds of which there is any doubt respecting their vitality, by sowing a few seeds in a small pot, before offering them for sale. And purchasers can test for themselves, any seeds of which they are distrustful, by sowing a few in a box of fine earth, and placing it in a warm room, exposed to the sun, where, if kept moist, the seed, if good, will vegetate in a reasonable time. In all cases where seeds prove to be bad, they will be replaced by others, or any reasonable satisfaction made. The proprietor has enlarged his establishment and increased his supplies, and with his experience in the business, together with his facilities for obtaining supplies, through Mr. GEORGE C. THORBURN, and his extensive correspondence and facilities for obtaining seeds, he flatters himself he will be able fully to meet the wishes and expectations of the public, and make the *ALBANY SEED STORE and AGRICULTURAL REPOSITORY* worthy of the high character it has already attained.

Persons ordering Seeds and Implements from a distance, with whom I am unacquainted, without remitting payment, are expected to give references in this city or New-York.
Sept-tf WILLIAM THORBURN.

**GREAT SALE of IMPROVED SHORT-HORN CATTLE AND BLOOD HORSES.**—The subscribers will sell at auction, on *Tuesday the 10th day of September next*, at the farm of Samuel Allen, on the Niagara river, two miles below Black-Rock, the entire stock of Imported Short-Horn Cattle, for several years past bred on the farm of L. F. Allen, on Grand-Island.

The herd consists of about thirty, including Cows, Bulls, Heifers and Calves. Several of them have been imported by one of the subscribers, direct from England, and with their produce, are surpassed by few animals in the country. In addition to these, every animal offered is the direct descendant of thorough bred imported stock, and of unquestionable purity of blood.

With the above will be sold twenty select and beautiful animals, consisting of pure Devon; crosses of different degrees between the Devon and Improved Short-Horns; crosses of the Alderney and Ayreshire with the Short-Horns. These are Cows, Heifers and Calves, all superior animals.

*ALSO*—The superb horse "BELLFOUNDER," got by imported Bellfounder, the best thorough-bred trotting horse ever in America, and out of the imported mare Lady Allport, bred by T. T. Kissam, Esq. of Long-Island. The stock of this horse is unsurpassed in the country for size, speed and action—together with several elegant, thorough-bred breeding mares and fillies, and two or three young horse colts, the produce of the above. These animals are of the highest character as roadsters, and as trotters, no blood in the country has excelled them. They are all from the best stables of Long-Island. Also, a beautiful pair of full-bred matched fillies, five years old. All these horses are blood bay.

This entire stock will be sold without reserve, to the highest bidder, commencing at 10 o'clock A. M. They can be shipped within an hour from the farm, on board the steamboats to go up the Lakes, or on board canal boats at the farm.

Catalogues of the animals, with descriptions and pedigrees, will be prepared, and the stock may be viewed at the farm previous to the sale. A credit of sixty days will be given on approved notes or acceptances, payable at a bank either in Buffalo, Albany, or New-York, for all sums over $300.

SAMUEL ALLEN. LEWIS F. ALLEN.
*Black-Rock, N. Y. June* 25, 1839.

**FOR SALE**—TWO SOUTH-DOWN BUCK LAMBS.—The subscriber imported, in the fall of 1837, two ewes and a buck, selected from the Earl of Leicesters flock, (Holkham,) of which the above is the progeny. Near Dobb's Ferry, Pa. July 23, 1839.
Sept-tf JAMES A. HAMILTON.

**NEW-YORK URATE AND POUDRETTE COMPANY**, not incorporated, but carried on by individual enterprise. The manures are not divided among the stockholders, as are those belonging to another establishment, but sold to applicants for cash on delivery. Orders are supplied in the order of time in which they are received. Urate 50 cents and Poudrette 40 cents per bushel, with contingent charges for bags or barrels, &c.

The company are daily preparing for use, during the warm dry weather, the materials collected during the past winter, and will have several thousand bushels ready before the first of October next. The material is disinfected and rendered free from offensive smell by a compound, every part of which is in itself a good manure. The experience of the past and present year, 1838 and 1839, on Long Island, has satisfied many of the farmers that these manures have the quickest operation upon vegetable matter, producing greater abundance, and the cheapest of any manure they have ever tried.

Amended instructions for their use, the result of practical experience, will be furnished on application. The effect of Poudrette upon grape vines and morus multicaulis is beyond all comparison. This company are erecting large and extensive works in the vicinity of the city of New-York to prepare the manures; and farmers and gardeners may confidently rely on a supply. Orders, post paid, directed to "The New-York Urate and Poudrette Company," box number 1,211, post-office, New-York, or sent to the store of STILLWELL & DEY, number 365, Fulton-street, Brooklyn, will be attended to. *New-York, July* 17, 1839.

The company will be very much obliged to gentlemen who have used the manures, to give them a statement in writing what has been the result of their use and experiments in relation to them. aug-4t.

FROM THE STEAM PRESS OF
PACKARD, VAN BENTHUYSEN & Co.